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Original Communications.

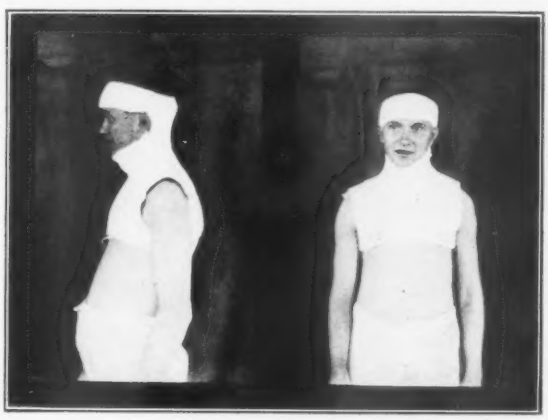
FRACTURED VERTEBRAE AND REPORT OF CASES.*

By W. L. POWELL, M. D., Roanoke, Va.

Fractured vertebrae are properly classified as those with and those without cord injury. The frequent site is the body of the vertebrae, and the most frequent location is the lower cervical and lower dorsal and upper lumbar regions. Those of the body are produced by hyperflexion and those of the arches by direct violence, and it is in these that we get the larger percentage of cord injuries, the vertebrae above being pushed forward, carrying with them the cord, which is compressed against the upper border of the posterior surface of the body of the vertebrae below. The extent of injury, of course, is dependent upon the amount of displacement.

Pressure of the cord is much more frequent in the cervical than in any other region; the articular processes offer less resistance to displacement than in the lumbar and dorsal. A large number of cases of fractured vertebrae show no sign of injury of cord or its roots. Mr. Pierce Bailey estimates this as one-third of all spinal injuries. Paralytic symptoms may, of course, be present without fracture or evident displacement, either from intra- or extra-dural hemorrhage. By so-called concussion of the cord or its roots, attention is, of course, immediately directed to the probability of a fracture, but those cases which do not show any sign of cord injury are the ones most frequently overlooked and diagnosed and treated as sprains of the back, as in case No. 2, who from a slight fall experienced a crushed fracture of the bodies of the third and fourth lumbar vertebrae with spreading of the bodies. He was not conscious of having sustained a severe injury and continued his work as engineer for two weeks before being forced to stop work on account of pain in the back which was regarded by his attending physician as a sprain. Frequently these cases diagnosed and treated as sprains will develop a well marked kyphosis which first suggests the possibility of a fracture. In the cervical region fractures of the arches are rare. Fracture of the body and dislocation are not uncommon, but are usually fatal, so very few are brought for treatment. Those that survive are usually those of partial dislocation and fracture of the body with only partial separation of one fragment as in the following case:

Case No. 1. J. S., age twenty-eight, cook, A. W. O. L. (absent without leave), returning to Camp, fell from the platform of a moving train and was brought to the Base Hospital,



Case 1.

Camp Sherman, within two hours after the injury. His head was held in a slightly flexed position. He was suffering extreme pain. All the muscles of his neck were rigid, but there was no sign of paralysis. An X-ray taken immediately showed a fracture of the anterior part of the body of the fifth cervical vertebra.

*Read at the fiftieth annual meeting of the Medical Society of Virginia, at Richmond, October 28-31, 1919.

He was put up in a cast extending from the middle of the chest up to the mastoid and inferior maxilla and around the forehead to prevent lateral motion. He was allowed out of bed in forty-eight hours and was very comfortable. Two months later a plaster collar was substituted which he wore for about two weeks. In a communication from this man about one month after discharge, which was four months after injury, he stated that he had suffered no inconvenience, all movements were free and without pain.

In fracture of the cervical region with displacement, those which come to treatment are usually unilateral. Care should be exercised in transporting these patients to avoid further displacement. The deformity is a flexion deformity and any careless handling may cause an increase of this with consequent increase of pressure upon the cord. Some form of collar is most useful to prevent this. Reduction is by traction with lateral flexion to disengage the fragments.

Fractures of the dorsal region, except the last two vertebrae, are comparatively rare, due to the support they receive on either side. Fracture of the arches is always produced by extreme violence. They may be struck from behind causing a fracture of the arches with compression of the cord, but a force sufficient to produce this is usually fatal. In the lumbar region displacement to any great extent is not frequent. The anterior and posterior common ligaments and the attachment of the psoas and the spinal muscles render considerable protection. The canal only contains the corda. It is fracture in this location that most frequently comes to operation, and it is also in this location that fracture is most frequently overlooked. A safe plan is to treat all back injuries as potential fractures until proven otherwise. The treatment in all these fractures is to reduce the deformity as far as possible, place them in a recumbent position, preferably on a Bradford frame, for six weeks to two months, and a proper spinal support should be worn for at least six months. If the fracture is in the cervical or upper dorsal region, proper support and traction should be applied to the head. The following cases were seen in the orthopedic service of the Lewis-Gale Hospital.

Case No. 2. J. W. C., age forty, engineer. On November 16, 1918, the engine pulled loose from the tank and dropped him to the ground. He states that he did not think he was injured to any extent and continued his work until November 30th, when he was forced to stop on account of pain in the back. He remained in bed for five weeks under the care of his physician, who regarded the injury as a sprain, when he was sent to Dr. Armentrout for an X-ray treatment which showed a comminuted fracture of the lower half of the body of the third lumbar vertebra and the upper half of the fourth with spreading of the fragments; no evidence of cord compression at any time. This man was referred to Dr. Graham in Richmond, who applied a spinal support. I did not see him until after this, at which time there was considerable lessening of the lumbar lordosis and a stiff back, but he was fairly comfortable while he wore the support.

Case No. 3. W. E. G., age twenty, iron worker. On March 4, 1919, a heavy piece of steel fell ten or fifteen feet and struck him. He was brought to the Lewis-Gale Hospital immediately, in extreme shock; ruptured diaphragm was found. This case is to be reported by Dr. Gale at this meeting. He was seen by me on March 22nd. Paralysis was present in both legs below the knees and the quadriceps

Case 3.

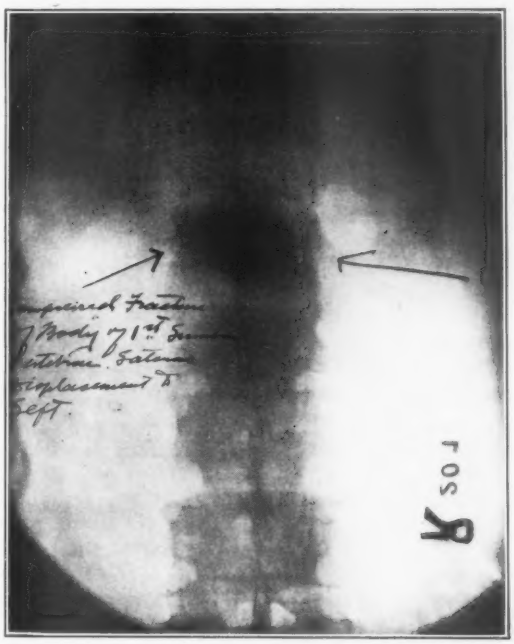
above the knee on the right side, complete foot drop, impaired sensation to touch and temperature also, marked on right side, some pain and tenderness in the lumbar region and the spinous process of the second lumbar vertebra was prominent; plantar and Achilles reflex absent. An X-ray was taken at this time which showed a comminuted fracture of the body of the second lumbar vertebra. The pressure was most marked on the right side. He was placed on a Bradford frame for about six weeks or two months, and later a plaster jacket was applied and he was allowed up. At present motion is practically normal in the left foot and leg. There is still a drop foot on the right side, but there is slight motion voluntarily and the flexors show some reaction to faradism.

Case No. 4. S. M. H., age thirty-two. On August 12, 1919, he fell twenty-five feet from a pole, striking the ground on the lower part of his back, suffering severe pain; did not try to stand. I saw him about ten days after the injury. At this time there was considerable soreness of the lumbar region and marked tenderness over the lower dorsal region. The spinous process of the second lumbar vertebra was prominent, reflexes were exaggerated, no clonus and no disturbance of sensation or sign of cord injury. X-ray showed compression fracture of the second lumbar vertebra.

Case No. 5. W. A. A., August 1, 1918, stepped off his engine to railway bridge, lost his balance and fell about fifteen feet, struck the left thigh and left side of his abdomen; had some pain in the back. He got up with assistance. When he arrived at the hospital his pain was severe in both groins and diagnosed a rupture of the attachments of the abdominal muscles; was in bed three or four weeks, then up. Was seen by me on April 18, 1919, when he had more or less constant pain in the back and was unable to follow his usual occupation. Examination showed a loss of the lumbar lordosis. Flexion was absent from the eight dorsal to the lumbo-sacral articulation. X-ray at this time showed a crushed fracture of the body of the second lumbar vertebra; spinal support applied. When last seen about two months ago, he stated he was fairly comfortable.

Case No. 6. A. W. G., June 21, 1919, fell in front of a level car. The car passed over him rolling him up in a ball, as he expressed it, causing severe pain in the lower dorsal and lower lumbar region. Suffering was extreme. Lumbar muscles were rigid and the slightest movement was impossible. There was marked swelling and tenderness in this region and a slight prominence over the first and second lumbar spine; reflexes normal; no disturbance of sensation. No paralysis. X-ray showed a fracture of the body of the second lumbar vertebra

Case No. 7. J. D. M. On August 28, 1919, was squeezed between two freight cars. Point



Case 7.

of contact right hip and left side of abdomen; was sent to the hospital in extreme shock; had abdominal distention and rigidity and was regarded as an abdominal case for several days. When this condition subsided, X-ray showed fracture of the body of the first lumbar vertebra. No paralysis or disturbance of sensation.

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HYDROCHLORIC ACID IN THE SYMPTOMATOLOGY AND IN THE THERAPY OF STOMACH DISEASES.*

By ALEXANDER G. BROWN, Jr., M. D., Richmond, Va.

Physiologists find great interest in discussing hydrochloric acid in gastric juice, not alone because it is found to be an important factor in its action upon both the food and the stomach itself, but also because of the very interesting fact that this mineral acid is secreted in the stomach and that it is the only secretion of the body containing a free acid. It is generally believed that the border cells constitute the acid secreting cells (Howell). As they are located in the middle portion of the stomach, in greatest number, it is here that acidity is greatest. The pylorus and fundus are comparatively free from acid forming cells. Now, since no acid is found in the blood or lymph, it is quite apparent that these specialized cells in gastric mucosa take out of the blood the chloride (probably sodium chloride); and, by breaking up this salt and combining with hydrogen, hydrochloric acid is formed in the stomach. It should be recalled that in the pyloric region of the stomach the pepsin forming glands are located, chiefly.

It is not our purpose to discuss the general subject of gastric functions but to limit ourselves to a comment upon the action of hydrochloric acid as the stomach performs its function. We may first note briefly the action of HCl upon food. Pepsin acts only in hydrochloric acid medium on proteins. The passage of the protein to the peptone under the influence of pepsin, in a hydrochloric acid combination, is a complicated one, but generally this process is said to pass from native protein to acid albumin (syntonin), to primary proteoses (pro albuminoses), to secondary proteoses (dextro-albuminoses), to peptone (all through a process of hydrochloric acid-pepsin action). One should recall that this gastric action upon protein is merely a preliminary step and, as such, serves as a necessary factor in duodenal digestion when the pancreatic juice further acts upon it.

In this connection, experimentation in the field of gastric motility reveals some interesting facts. The usual meal requires some 300 to 400 contractions of the stomach to lift it to, and expel it through, the pyloric outlet. This work is performed by the stomach through several general influences. The chief of these influences is the hydrochloric acid control of the pylorus. The acid chyme of the stomach is thrown through the pylorus into the duodenum and this causes contraction of the pylorus. The pylorus remains closed until the alkaline juice of the duodenum neutralizes the injected stomach juice and, when this is accomplished, the duodenal pylorus again opens. This process goes on constantly until the stomach is practically empty; and when the normal stomach is fasting it remains in a state of recurrent contraction. Hunger is caused by rhythmic contractions of the nearly empty stomach. The stomach is never completely empty. It contains a residuum of 20 to 50 c. c. of hydrochloric acid and pepsin chyme. When the food is swallowed, an increase of flow of gastric juice occurs. Peristaltic contractions are accelerated. The food-chyme, mixed with acid and pepsin, presses from the parsmedia into the pylorus. This makes a constant pressure upon pyloric sphincter.

The nature of the food is a factor entering into this emptying-time of the stomach in addition to the degree of acidity of the chyme poured through the pylorus. The protein influences a slower and more prolonged closure of the pylorus than the carbohydrate diet. It is known, also, that the protein diet is slower to initiate pyloric opening. The protein unites with much of the free HCl; and it excites a larger secretion of HCl and, as a result, tends to delay gastric emptying. Cannon has shown that, at the end of a half hour, eight times as much of carbohydrate is expelled as protein.

There is also a factor acting upon the stomach secretion through nervous innervation. Interpretation of gastric unbalance, through the contrary nervous inhibition of vagotonia and sympathicotonia, is as yet unsatisfactory in practical fields of medicine. However, spasm of the pyloric sphincter, deep spastic contractions of the stomach and temporary hour-glass incisure of the stomach, are muscular disturbances consonant with excessive hydrochloric acid. On the other hand, persistent low state of hydrochloric acidity tends to induce tardy and lazy contractions of the stomach and, further, to favor a patulous pylorus. This latter condition results in premature emptying of imperfectly acidified gastric contents into the duodenum, which in turn sets up serious gas-

*Read at the fiftieth annual meeting of the Medical Society of Virginia, at Richmond, October 28-31, 1919.

trogenic disturbances. As hydrochloric acid serves so important a function, when this acid appears in the stomach in excessive amounts it necessarily sets up gastric symptoms, rather than proper gastric functions. And so this acid juice plays an important role in the symptomatology of gastric dys-function and gastric disease.*

In the light of the foregoing, one's thoughts turn naturally to hyperchlorhydria cases. Hyperchlorhydria is a functional disturbance of the stomach, so called because the gastric juice constantly contains an excess of hydrochloric acid. This disturbance of the stomach-function occurs so often in our patients, setting up subjective symptoms so uniformly characteristic, that it has assumed the importance of a common stomach trouble. It is easily possible that 50% of the stomach cases, excluding those classed as organic, are suffering from an excess of hydrochloric-acid-secretion. One can only think that, in its beginning, hyperchlorhydria is a compensatory secretion which occurs in an effort to automatically overcome some constant over feeding defect, or some continued excess of protein food intake or some nervous or mental habit which retards normal secretion. The clinical evolution of such a dys-function is easily conceivable. The stomach pylorus is in this manner more or less spasmodically obstructed: the discharge of gastric contents is delayed; the hypermotility of the stomach, at first increased, becomes retarded; the food undergoes putrefactive and fermentative changes, the stomach-chamber enlarges, and the patient is penalized by the following train of subjective symptoms: uneasiness one or two hours after eating, distress at the height of the digestive period, pain (pylorosplaasm) varying in intensity and duration, nervousness, melancholia, nausea, loss of appetite or increase of appetite.

In two hundred cases of hyperchlorhydria upon which this phase of the paper is based, morning headache has been frequently noted as a symptom. In these cases gastric analysis shows a total acidity of 60—80. Special care should be given to determine the amount of free hydrochloric acid. Fractional analysis of gastric contents in these cases has thrown new light on the timing of, and degree of acidity-curve, and also given special information in regard to the emptying time. Both of these factors in my experience are of greatest assistance in the interpretation and management of these cases, particularly with reference to the medication and diet.

Also, in cases of chronic catarrhal gastritis the HCl cuvre must be studied because of the therapeutic advantage obtained. Whatever the cause, whether chronic focal infection of the mouth, constant over-eating, passive hyperaemia, diseases of the blood, or what not, the action of the hydrochloric acid secretion is essential to interpretation and management, for upon this, as just said, depends the emptying-time and digestion of the food. Gastric mucus forms as interesting companion-symptom in these cases. While in the early stages of catarrhal-stomach-cases the hydrochloric acid may not be far away from normal, the appearance of mucus is of significance; and while the HCl curve increases in some of the catarrhal cases, the tendency of the hydrochloric acidity is to diminish in direct proportion to the intensity of the pathology. The role of hydrochloric acid in ulcer also is an interesting one. It is not within the scope of this paper to discuss the pathogenesis of ulcer or to advocate the old against the new views of the cause of ulcer and the relation of hydrochloric acid secretion to it. While we know there are found cases of true peptic ulcer with normal hydrochloric acid, the more common experience is to find HCl in excess. It is felt that this excess of free hydrochloric acid adds to the spasm of the pyloric closure and to intensity of the intra-stomach pressure and probably to the degree of pain. So, whether or not medication for gastric ulcer should be based upon alkalization or upon the reduction only of the excess of free hydrochloric acid, is all dependent upon our determining the acidity, its curve of ascent, and its prolongation.

It would seem that, in this connection, a word about the antacid medication in hyperchloric acid cases may be within the intent of this paper. Crohn's paper* assembles a most recent study of the effect of antacid medication on gastric acidity and secretions and so I quote liberally from it and commend his studies to you. The frequency of the hyperchlorhydria-stomach cases, its greater frequency than sub-acidity cases, makes any study of the adminis-

*The foregoing paragraphs appeared in the Virginia Medical Monthly, August, 1919, as an editorial by the author.

*Crohn: Studies in Fractional Estimation of Gastric Control. A. J. M. Sc. June, 1918, page 801.

tration of antacid a matter of daily and practical interest. It was to neutralize the excess mineral hydrochloric acid secreted that (empirically) it had become the custom to give alkaline salts. Following this time honored custom, stomach patients have been given soda and magnesia. Pawlow and others experimented upon animals, administering saturated solution of sodium bicarbonate with the effort to show the inhibitory effects upon hyperacidity and upon the emptying-time of the stomach. Later the theory that the alkalies exerted an inhibiting action was contradicted by certain clinical observations. Du Mesnil (cited by Crohn) fed a patient increasing doses of soda bicarbonate and found an increasing daily acidity on successive days. Von Leube (cited by Crohn) claimed that soda bicarbonate temporarily neutralizes, but gives rise to secondary stimulation of acid secreting glands. Linoissier and Lemoine (cited by Crohn) held that the immediate effect of soda bicarbonate administration was to excite acidity: if given in small doses temporarily to neutralize, but later to augment HCl; if given in massive doses, neutralization is attained, following which an arrest of hydrochloric acid production may occur but, before the food left the stomach, normal acidity returned. Bourget (cited by Crohn) was convinced that alkalies caused an eventual augmentation rather than diminution of gastric acidity. In view of this divergence of view which is reflected not only by experimentation but also among clinicians, it is interesting to follow the conclusions of Crohn's personal experiments in this field.

His experiments were performed upon 150 secretory or hyper-secretory patients. He found, in his experiments, that soda and magnesia act therapeutically in relatively the same way, both neutralizing acidity the moment of administration: soda bicarbonate acts more quickly but less thoroughly. But, following each, there was a secondary rise in the acid value; with the magnesia the secondary rise exceeded previous acid levels. It can be readily seen how confusion arose when only few observations from test meals were made,—each investigator selecting a different time for testing acidity. Crohn says the practice of giving alkalies in hyperchlorhydria before meals is, in the light of his studies, bad practice, for the meal comes at the period of secondary acid rise. He concludes that alkalies have a proper value as a neutralizing agent if administered properly. This should be after meals. Further, he found that soda bicarbonate in 30 grain doses produced no depression, "in fact produced a rise in average total acidity." However, there was a moderate and physiological temporary neutralization and the secondary rise was not unreasonable. This was true of 30 grains, while 60 grains caused a general depression, but was followed by a secondary hyperacidity which out-weighed its beneficial qualities of neutralization. He observed that 60 grains should not be given in hyperchlorhydria cases except in cases of 90 or more. In the use of magnesia, fractional doses are recommended, the employing of five grains every half hour during the gastric digestion in cases of moderate hyperchlorhydria. In use of large doses of magnesia, 15 grains or more produces an initial depression of an excessive degree depriving the stomach of that normal acid value which is essential to proteolysis and, also, producing a stimulating effect upon the acid secretory cells whereby the secondary acidity creates a greater hyperchlorhydria than the mere food would have done. The prominent thought in the use of such corrective agents of hyperchlorhydria is that the fractional doses of alkalies should be distributed at intervals over the period of gastric digestion with the purpose in view of effecting a physiological state in the stomach. Beneficial for a while, the prolonged and abiding relief must be found in the removal of the causes, and the regulation and management of diet and habits of the patient to meet the limited function of the patient's stomach.

Sample Cases of Hyperchlorhydria.

Case I. A. P. T. (File No. 13170), white, male, aet. 38, tobacconist. Complaint of patient: Nervousness and stomach trouble. For weeks been feeling faint; been having headache; dizziness; has had good appetite; has had eructation; heart burn; and gas in bowels and constipation. Insomnia.

Ewald Test Meal: Fractional samples at 15 min: 4 of free HCl, 43 total; 30 min., 8 free HCl, total 30; 45 min., 30 free, 59 total; 60 min., 33 free, 66 total; 1 hr. 15 min., 53 free, 67 total; 1 hr. 30 min., 62 free, 74 total; 1 hr. 45 min., 62 free, 78 total; in two hours only small amount secured.

This patient was given antacid medication:

astringent bitters before meals; carefully arranged, no stimulating diet. His ugly tymptoms disappeared; he gained 6 pounds in weight in 3 months' treatment.

Case II. D. T. W. (File No. 10936), white, male, aet. 36. Surveyor. Patient's complaint: Distress in stomach after eating. Nausea, sour stomach; dry mouth, coated tongue; relieved by soda.

Test Meal: Sample of gastric chyme taken thirty minutes afterwards showed total acidity of 65, combined 14, free 51.

In this, as in all these stomach cases, careful study of other organs and associated conditions was made. Antacid medication in fractional amounts was prescribed—preceded by bitter astringents, marked improved results.

Case III. Mrs. W. P. (File No. 11714), white, female, aet. 22, married. Patient's complaint: Had indigestion for six years; everything she ate disagreed with her immediately; sour and acid belching is felt and suffered from lump in her throat, but has good appetite. Analysis of sample of gastric contents after a test meal showed: Quantity 87 c. c., free HCl 24, combined 42, total 66.

She had associated conditions which were corrected. Antacid medication with diet were effective in relieving the complaint of the patient.

Case IV. Rev. H. H. S. (File No. 11767). Complaint of patient: been suffering from sour and burning stomach, no nausea but violent stomach noises and pain; saliva flowed from mouth and gas is discharged with noise. Gastric analysis showed in sample of 30 min., 30 free HCl, total 35; one hour and thirty minutes, 48 free HCl, 61 total acidity.

Antacid medication has removed his complaint although indiscretion of diet caused return of symptoms.

Case V. Mr. J. T. B. (File No. 11420), white, male, aet. 28, farmer. Complaint of patient: Stomach trouble for years; operated on for appendicitis in 1904; has poor appetite; sour stomach; gaseous distention of stomach: pain in stomach after eating. Examination of his stomach contents showed a total acidity of 75, with combined 15 and free HCl 60.

In achylia gastrica, indicating an absence of combined or free HCl, along with the gastric ferments, denote the state of relaxed pylorus. In the absence of HCl we infer the emptying is altogether too rapid and that chymification of the food is not completed and that the proper hormone action upon the duodenum, liver and pancreas is wanting. From this the symptoms of anorexia, nausea, vomiting, eructation, pressure over epigastrium, accelerated motility of the stomach and intestines, and gastrogenic diarrhea, make important associate symptoms in the absence of HCl. In subacidity motor insufficiencies of the stomach (cases not falling within the definition of secretory neuroses), the appearance and the degree of hydrochloric acid secretion during the period of gastric digestion must be studied by the physician as well as must be the directing etiologic factors entering into the case. This applies equally in all cases of atony and dilatation. As a physiologic factor in all cases of atonic stomach action and as an indicator of disorder in gastric functions, the low or subhydrochloric acidity merits every interest of the practitioner. As a supplementary acid, in cases of diminution or absence of it, it is important to know when and how much to give to get the results needed. And so one might profitably refer to the studies on this subject which have been recently made by Crohn.*

As we know, no uniform or standard method of acid administration has been generally accepted as to amount needed and the time of administration and frequency of its use. The usual dose of the dilute acid is 5 to 30 minims in water, to be taken immediately after meals. Leo (cited by Crohn) has used equivalent of 75 to 225 minims in a single dose, and, on withdrawing stomach contents during digestion, was able to demonstrate some increase even in the acid titer of the chyme. Ortner (cited by Crohn) feels that it is impossible to administer HCl in suffiicient quantities to leave some free acid in the stomach as gotten in a normal stomach and so he advises 10 to 30 drops of the dilute HCl every ½ hour until digestion is completed. Bourget (cited by Crohn) recommends HCl be administered as a 2% solution giving 100 to 200 c.c. to be taken in small amounts during the gastric digestion. But Crohn, from his experiments, reaches the following conclusions, (1) hydrochloric acid administered therapeutically to the fasting stomach promptly disappears from that organ, the last trace leaving within 25 minutes; (2) HCl administered before a meal exerts no influence on the acid secretion of the subsequent diges-

*Crohn: A. J. M. Sc., Nov., 1918, page 656, Dec., 1917, page 857.

tion period; (3) the therapeutic administration of HCl with a test meal is of advantage for only the first half hour; (4) twenty drops of dilute HCl failed to improve the condition of anacidity when given with a test meal; (5) forty minims of dilute HCl gave a definite though moderate increase of acidity but was limited to a short period directly after taking the medicine; (6) ten minims of dilute HCl administered every half hour was a mild though efficient method of increasing total acidity during digestion but produced no free acid during the period.

In my cases of low HCl, it has been my practice to prescribe HCl in pepsin water given in doses of 10 minims every 15 to 30 minutes during the period of gastric digestion. This general rule is modified to meet varying needs and conditions of the patients. Following, I have selected seven case reports to support this view. In these it was noticed that the careful and periodic administration of HCl in pepsin water, always associated with a careful selected diet, served to relieve the patient of the discomfort of gastric mis-functionation.

Sample Cases of Subacidity.

Case 1. Miss H. (File No. 13314), white, female, aet. 36. Complaint: Nervousness, indigestion, pain and burning in stomach, belching and "egg-breath," feels badly at night; has good appetite.

Gastric fractional analysis: In 30 min., 21 free HCl, 22 combined; 45 min., 10 HCl, combined 10; 60 min., 16 free and 11 combined: stomach empty in one hour and fifteen minutes. Gave 10 minims HCl in pepsin water every half hour until 40 minims were taken. Gave meat and stimulating diet for breakfast and dinner. Patient after one month's treatment reported digestion good and nervousness gone. This was a case of mild subacidity which was headed for serious gastritis.

Case II. Mr. B. H. S. (File No. 12979), white, male, aet. 25. Complaint: Fears, panicky feeling after eating, flushes, goose flesh. Weight 114½ pounds. Fractional gastric analysis: 30 min., 29 free, 37 total; 45 min., 15 free, 22 total; 60 min., 20 free, 40 total; 1 hr. 15 minutes after test meal patient's stomach was empty. Gave patient fractional doses of HCl in pepsin water throughout gastric digestion. Patient improved very well at first and from November, 1918 to May, 1919, with some ups and downs, seemed to be better than he had been for years. He gained in weight and was freer from phobia and nervousness.

Case III. Mrs. P. S. (File No. 13480), white, female, aet. 25. Weight 107 lbs. Complaint: Had stomach trouble for years with distressing nervousness. Periodic attacks of headache every 10 days. Excellent appetite. Analysis of stomach contents showed absence of HCl. This case improved under diet and large hydrochloric fractional doses after eating. Headaches while recurring are less frequent.

Case IV. Subacidity. Mrs. T. S. (File No. 13004), white, female, aet. 25. Complaint: Noisy belching and indigestion. After Ewald test meal, in 45 to 60 minutes the stomach was empty and analysis of extraction at 30 minutes showed 11 total; at 45 min., total 9. Records are incomplete on the case as to stomach function.

Case V. Mr. I. C. S. (File No. 12972), white, male, aet. 48. Merchant. Complaint: Been suffering with indigestion and headache for 20 years, nervousness; renal colic. Gastric analysis: 30 min., free HCl 10, total 48; 60 min., free HCl 8, total 20; 1 hr. 30 min., free 22, total 35; absence of free HCl after that. A complete diagnostic study was made of this patient with Wassermann, X-ray, renal function, etc., which were reported to Dr. Beckwith, of Petersburg. What relief the patient got is not known.

Case VI. Mr. R. L. R. (File No. 13422), white, male, aet. 34. Weight 163 lbs. Height 6 feet. Complaint: Every three weeks stomach goes back on him; suffers with headache; nervousness; depression; feels tense and irritable; sour stomach (excellent appetite). Ewald test meal at 9:45 A. M.: 45 min., free HCl 0, total 9; 60 min., free HCl 0, total 4; 1 hr. 30 min., free HCl 0; total 4. Gave this patient 10 minims of dilute HCl in pepsin water every 15 minutes from the time he finished meals until one hour and a half after meals. Gave stimulating diet of protein and highly seasoned food. His improvement was immediate and complaints disappeared.

Case VII. Mr. E. N. (File No. 11762), white, male, aet. 58. Painter. Complaint: Stomach burning; melancholia; gas distention; loss of weight; appetite good, but afraid to eat. Fractional analysis; 30 minutes, free HCl 10,

total 18; 45 minutes, 15 free HCl, 25 total; 60 minutes, 12 free HCl, 19 total. Gave HCl dilute in small doses during period of gastric digestion; allowed more liberal diet in meats and spiced food. Patient in two months improved greatly losing the ugly symptoms of gastric indigestion and nervous depression, gaining in weight and strength.

1135 *W. Franklin Street.*

DISCUSSION.

Dr. Douglas VanderHoof, Richmond: Very recently we have been tabulating the histories of 2,000 consecutive patients who have been subjected to gastric analysis, and certain practical points have been determined as to the occurrence and symptomatology of achylia gastrica.

In the first place, the interesting fact was determined that one out of every six patients so examined had a complete achylia. The gastric analyses were made by the fractional method, and the 16 per cent. incidence of achylia applies to the whole series, including patients of all ages. Including only those patients who were over fifty years of age, the incidence of achylia gastrica was 30 per cent.

As to the symptoms produced by achylia there is a considerable diversity of opinion. Many so-called stomach specialists pay relatively little attention to achylia. They realize its frequency, but are rather inclined to doubt its significance. Personally, rather extensive experience has convinced me very conclusively that achylia is not only a pathological condition, but that it is followed by a varied train of disturbances and requires very definite treatment. In the first place, one-third of the achylia cases are apt to be troubled with recurring or chronic diarrhea, the so-called gastrogenous diarrhea to which Dr. Brown referred. In fact, achylia gastrica is the commonest cause of chronic or recurring diarrhea. This diarrhea is controlled at once and permanently by the administration of hydrochloric acid.

The second point is that a certain number of these cases, possibly as many as one-third, show a secondary type of anemia. The hemoglobin is frequently below 70 per cent., occasionally as low as 40 or 35 per cent. These cases show no other explanation for the anemia. There has been no loss of blood from the rectum or undue menstrual bleeding, etc. This anemia is relieved following the administration of hydrochloric acid. In addition, we have observed a small series of achylia patients who have subsequently developed typical pernicious anemia.

Now, it must be apparent that food in the stomach containing no hydrochloric acid is not digested. In other words, the pepsin of the stomach requires acid for its activation. In the intestine such food, unprepared by the usual gastric digestion, is very apt to undergo certain changes. We speak of these changes as fermentation or decomposition, and believe that certain toxic substances are produced which in time will cause diarrhea, anemia, weakness, etc. This toxema is relieved by the regular administration of hydrochloric acid.

Occasionally we find a complete achylia in a patient with no gastro-intestinal symptoms. Recently a friend of mine, a great golf player, came to me complaining of "catarrh of the head," which was found to be due to a chronic ethmoiditis. He had no other complaints. He feared that his nasal catarrh came from some stomach condition. At his suggestion, gastric analysis was made and showed a complete achylia. These cases are not very unusual.

Another interesting thing is that seventeen per cent. of our achylia cases complained of discomfort that suggested hyperacidity, and some of these gave an almost typical history of peptic ulcer. The gastric analysis showed complete achylia and the X-ray showed absolutely no evidence of ulcer. The symptoms disappeared immediately and permanently on the administration of hydrochloric acid. In these cases I believe we are dealing with a chronic gastritis, due to the lack of acid in the stomach, and the pain is probably due to the irritation from the undigested food.

Another very interesting point, and a very pertinent one, is that certain of the cases of achylia gastrica show a characteristic appearance of the tongue. The tongue in these cases is absolutely clean, red and bald. This atrophic glossitis would seem to indicate that the achylia is of very long standing and it is these cases, especially, that are most apt to develop either pernicious anemia or pellagra.

In the treatment of achylia gastrica with dilute hydrochloric acid, the ordinary dose of 10 or 15 minims is absolutely inadequate, unless it is given every fifteen minutes or half hour during the gastric process. We always prescribe one teaspoonful of dilute hydrochloric acid in a full glass of water, or, what is much better a glass of buttermilk, with meals; not infrequently, we give it twice, that is one teaspoonful during the meal and one teaspoonful right after the meal. I have an interesting patient who comes to see me twice a year from West Virginia who has had a complete achylia for twelve years at least. She has taken one or two teaspoonfuls of dilute hydrochloric acid with every meal for the last twelve years and remains well.

Dr. Everett E. Watson, Salem: I am very much interested in this subject because in sanatorium work it seems to me that gastro-intestinal upsets cause us more trouble than all other symptoms combined. We must not ignore the autonomic nervous system in these cases. In the majority of our early cases there is a condition of vagus-tonus with hyperacidity, hypermotility, etc. Atropine gr. 1/120 given one-half hour before meals frequently relieves this.

In the advanced case there is usually marked toxemia which centrally stimulates the sympathetics and expresses itself in inhibition of action, with a resulting hypoacidity and hypomotility. I have tried everything for the "dyspepsic" of the old chronic tuberculous patient, and of all the medicines it seems to me that the old-fashioned prescription of hydrochloric acid, pepsin and tincture nux vomica, gives the best results. I have never tried giving hydrochloric acid as suggested by Dr. Brown, but it sounds rational and in the future I will give it in fractional doses during the process of digestion.

Dr. A. G. Brown, closing the discussion, said that in presenting a subject like this, which appeals to us from so many points of view, it is quite difficult for us to confine ourselves to the discussion of the points made in the paper.

My purpose was in the paper to draw attention of the society to the role of hydrochloric acid, whether in excessive or diminished amounts, as an indicator of certain functional stomach disorders and, at the same time, to bring out the most advantageous methods of using it therapeutically for the correction of sub-hydrochloric cases, with symptoms. Also, I wished to show the method of overcoming hyperhydrochloric cases by the use of alkalies.

As Dr. Watson has indicated by his lung cases, functional disturbance of the stomach often occurs from causes in and outside of the stomach which must be considered. I have not attempted to catalogue the causes of these functional disturbances. Of course, the cause of the disturbance in each case should be discovered and removed.

At the close of the discussion of Dr. Brown's paper, Dr. VanderHoof, Richmond, asked that he be allowed to make a few remarks, which were as follows:

Dr. VanderHoof: I just want to speak for a very few minutes about the question of the dosage of hydrochloric acid because I am really very much in earnest about this matter. The chief thing to realize in administering acid to patients with achylia is the fact that we are not giving the patient a drug, we are not giving the patient a medicine—we are simply trying to supply artificially a secretion which Nature fails to produce. In other words, we are trying as correctly as possible to follow a physiological procedure. The next thing is this, that in giving the patient a drachm of the official dilute acid, we are not giving him as much acid as the stomach would normally produce. One great difficulty in medical work is obvious—that we are apt to be hidebound by tradition or by practices introduced in the past. The ordinary dose, as given in the text books, of 10 or 15 drops of dilute hydrochloric acid is not sufficient for a case of achylia. I like to emphasize this point for the reason that so frequently the doctor to whom I write in regard to the patient he has referred does not understand this question of large doses, and not infrequently the druggist who fills the prescription writes to know whether or not an excessive dose has not been prescribed.

The work of Crohn, of Mt. Sinai Hospital, quoted by Dr. Brown, is particularly important and he showed that enormous doses of acid may be administered without producing any harm in cases of achylia. He showed that the best results are obtained when the acid is given in doses of fifteen minims at frequent intervals, possibly every half hour, during the period of digestion covering three or four hours. It is difficult for the patient to carry out such instructions and in consequence we order one drachm of dilute acid for these complete achylia cases. The patient is requested to have another stomach analysis made in three or four months to find out if the achylia persists. Only in this way can we distinguish the true from the false achylias. The cases I have in mind are those of persistent achylia, cases that have been followed over a period of years, cases in which repeated gastric analyses show an absence of all gastric secretion.

Dr. Toy, of Stony Creek, here asked Dr. Vander Hoof about the care of the teeth while administering this acid.

Dr. VanderHoof: I have taken this question up very carefully with several excellent dentists. They tell me that the continued administration of hydrochloric acid may possibly affect the enamel of the teeth; they also tell me that if the patient brushes the teeth after taking it there is no danger of this whatever. Therefore, in giving the acid we always caution the patient to brush his teeth after each dose, using a regular tooth-paste or water containing a little bicarbonate of soda. It is an excellent plan for all of us to brush our teeth after each meal. There is no advantage in taking the acid through a tube. Just as much gets on the teeth that way as in drinking it. The pleasantest way to take the acid is in a full glass of buttermilk. The addition of the acid does not affect the physical properties of the buttermilk and alters its taste but a little. Moreover, in this method of administration, an acid albuminate is formed which cannot possibly injure the teeth.

THE LABORATORY DIAGNOSIS OF TYPHOID FEVER.*

By E. C. L. MILLER, M. D., Richmond, Va.
Professor of Bacteriology, Medical College of Virginia; Bacteriologist to State Board of Health.

and

AUBREY H. STRAUS, B. S., Richmond, Va.,
Associate Prof. of Bacteriology, Medical College of Virginia; Bacteriologist to Richmond Health Bureau.

Speaking for and representing the Bacteriological Laboratory of the State Board of Health, we desire to say that this laboratory has no other purpose than to be of the greatest service to the physicians of the State. To this end, the laboratory examines free of charge, waters, both bacteriologically and chemically; stools for hookworms and other intestinal parasites; blood for malaria, typhoid fever, and syphilis; sputum for tuberculosis and pneumonia; throat swabs for diphtheria; dogs' heads for rabies; and, in fact, does all that a well-equipped State laboratory should do. The laboratory is anxious to work in ever closer co-operation with the doctors of the State, and to constantly enlarge its range of usefulness. It is also necessary that we should keep up with the progress of medicine, and that we should, from time to time, discuss with the physicians of the State the various problems that arise.

It is to talk over with you the improvement of a certain test that we are here today.

For several years the laboratory has tried to help you in the diagnosis of typhoid fever, but we have not been as successful in this as in our other tests, on account of the way in which this particular test (the Widal) is made. Those of you who have made use of this laboratory know that you have obtained

*Read at the fiftieth annual meeting of the Medical Society of Virginia, at Richmond, October 28-31, 1919.

a drop of the patient's blood, placed it on a piece of metal, let it dry, and sent it in to us. This has been of some use; it has helped to fix the diagnosis in some cases, but often it has failed. There are several things about this test that are unsatisfactory. For one thing, the amount of blood placed on this slide may vary from a very minute drop to several large drops. Sometimes the dried blood loosens from the slide and is broken up in the envelope. With such material to start with, it is impossible to make accurate dilutions or to get reliable results. Then this test is faulty not only in its technique, but also in its fundamental conception. This Widal test is a test for the presence in the blood of a typhoid antibody—a substance formed as a result of the typhoid process. It is obvious that such a body will not be formed until well along in the disease; that some patients will produce it earlier, some later; that some patients will produce it in large amount and some in small amount, just as patients react in different ways to the disease.

In hospitals where this has been tried out by making the test on a patient every day or two throughout the disease, it has been found that there is an enormous variation in the time at which the antibody can be found, and in the amount produced. In some patients, it may be found during the first week; in others, it may not appear until convalescence is well established. As a rule, the further along the case, the more apt one is to find it.

Then again, the finding of this antibody does not show conclusively that the patient has typhoid fever. It simply shows that, at some time, in some way, the patient has been immunized against typhoid. He may have typhoid now, or he may have had it at some time in the past; he may have been vaccinated against typhoid, or he may be a carrier of the germs.

In view of all this, we have felt for some time that the laboratory is not helping the doctor very much when it makes a Widal test for him, and that some better test should be used. Fortunately, there is a test which we can make that is of more value. During the early days of typhoid fever, the germs are present in the circulating blood, so that, if you send us some of rthe patient's blood and we find typhoid germs in it, then you can know positively that it is a case of typhoid fever. The only disadvantage is that the blood must be taken with more care than in the Widal test. The blood must be taken with full aseptic precautions, so that no extraneous germs may gain entrance.

During the first week or ten days of a case of typhoid fever, the bacilli are almost constantly present in the circulating blood. They sometimes may be found for several weeks, but in a steadily decreasing percentage of cases, as shown by figures from Coleman and Buxton (*American Journal of Medical Science*, Vol. 133, 1917). In the first week, they may be found in 89% of the cases; in the second, 73%; in the third, 60%; in the fourth, 38%; and after the fourth week, in only 26% of the cases. Consequently, the earlier in the disease a culture is taken, the greater the likelihood of finding the organism. Obviously, the finding of the typhoid germs themselves in the blood is conclusive diagnosis of typhoid fever.

The usual method of taking a blood culture is as follows: Cleanse and sterilize the skin of the arm just at and below the bend of the elbow. Bandage the upper arm tightly enough to distend the veins. With a sterile syringe and rather large needle, draw several cubic centimeters of blood from one of the large veins at the bend of the elbow. Quickly run the blood into the bottle of culture media provided in the outfit. Care must be taken not to contaminate either the media or the blood in withdrawing the stopper or in running in the blood. Mail the outfit promptly, preferably by special delivery, to the laboratory.

The best culture media for this work is ox-bile to which peptone has been added. This is the media we supply in our outfits.

The laboratory examination of a blood culture usually requires about two days. If there is a contamination, a longer time will be required.

If the physicians of the State will give this method a fair trial, we are convinced that, in a few years, the Widal test will very seldom be resorted to.

DISCUSSION.

Dr. P. M. Chichester, Richmond: Being connected with the Health Bureau in the city, I feel very grateful to Dr. Miller and his co-workers for the great deal of emphasis laid upon the taking of

blood for blood cultures, rather than taking blood for the old Widal reaction, for aiding in the diagnosis of typhoid fever. That the possibilities of the Widal reaction are very misleading to the physician in his diagnosis are manifest, as Dr. Miller has pointed out and as I shall try to emphasize now.

Quite a few cases have come under my observation, while acting in the capacity of Medical Inspector of the City of Richmond, where the Wida! has shown positive and the case finally diagnosed as something else besides typhoid fever. When responding to the request from a physician to take blood for diagnosis in typhoid, I made a practice of taking blood for the Widal along with that for the culture. The results were very interesting and proved very conclusively, to my mind, that the Widal reaction is practically worthless as a diagnostic point. As a result of this work done by me in comparing the Widal and culture, we have discontinued taking blood for Widal, even when requested by a physician. On the other hand, we are willing and anxious to take blood for culture as an aid to diagnose typhoid. As Dr. Miller has said, a Widal will show positive if the patient has ever had typhoid, or has taken typhoid vaccine, and in a certain group of diseases. So, with these facts, and vaccination against typhoid increasing each year, the old Widal reaction becomes more and more useless. In the cases where I took blood for cultures and Widals, the results were marked—some negative Widals with positive blood cultures and some positive Widals with negative blood cultures, in which latter case, almost invariably, the patient proved not to have typhoid. (In one case, I recall, the child finally developed whooping cough; and in another tuberculosis, where the Widal was positive and the blood culture negative). We know that every positive blood culture means a case of typhoid fever, however mild.

Another big point in favor of blood culture is the fact that it is such an early means of diagnosis, which is, of course, attractive to me as a health officer. The earlier we can get after the sanitary conditions surrounding a case of typhoid, and give instructions to other people who are thrown with it, and find out the possible source of infection, the surer we are of having no more cases develop from this one, or from the same source, and the happier we are. The earlier the blood culture is obtained, the more certain we are to have a positive result, if typhoid be present. (In the first three or four days, only about 2 per cent. of positive cases show a negative blood culture. This percentage decreases as the case progresses). On the other hand, the Widal will not show positive until about the tenth day, or thereafter, in which time every member of the family has stood a good chance of infection.

The physician who can tell the family early that he KNOWS the patient has typhoid, has gone a long way towards gaining their confidence and respect. I feel that if every physician here would take back and apply in his practice this one fact, that the early blood culture is the only real test for typhoid fever, now well established, he will not have misspent his time in attending this meeting.

Again, I want to thank Dr. Miller, as representative of the State and City Bacteriological Laboratory, for taking this stand, even though it does add much work to his already very busy force; also I wish to thank each and every physician here for his kind attention.

Dr. J. M. Hutcheson, Richmond: I should like to ask Dr. Miller what he thinks of the advisability of stool culture as the routine in typhoid. The Widal is unsatisfactory, particularly in vaccinated cases; the blood cultures are positive only during a limited period. The bacilli are present in the stool probably throughout the disease and specimens can be readily obtained. With the proper laboratory technique, it seems to me that a stool culture will come to be the most valuable means of laboratory diagnosis in typhoid at our command.

DIVERTICULUM OF THE BLADDER, WITH REPORT OF THREE CASES.*

By R. L. PAYNE, M. D., F. A. C .S., Norfolk, Va.

With improved methods of diagnosis Diverticulum of the Bladder has been brought from the dim light of a post-mortem anomaly to the realms of the present day surgery and is now recognized as a definite surgical entity. As late as 1906, Young could find report of only five cases of operations performed for radical cure. Since then, valuable articles on the subject have been contributed by Clark, Cabot, Lower, Squier, Young, Lewis, Bryan, Rathbrin, Judd and others. The technic of operation has been improved and, though the mortality is still high in those cases with acute diverticulitis, the possibility of radical cure opens a promising field for the surgeon.

The pioneer writers on the subject were prone to draw hard and fast lines between types and all strove to accomplish a differentiation of the congenital and acquired diverticulum. The congenital type was formerly thought to be those in which all coats of the bladder were involved in the diverticulum; the acquired type had a sac composed of mucous membrane only, in other words, it was merely a hernia of the mucous membrane between the fibres of the muscular coat of the bladder wall caused by some obstruction in the urinary outlet, usually in the neighborhood of the neck.

Thomas reviewing twenty cases of the Mayo Clinic was unable to differentiate the acquired from congenital type by the presence or absence of muscle bands, thereby refuting the theory. Lewis was unable in his cases also to confirm Rokitansky's declaration that diverticula were found only in bladders with hypertrophied walls and the same writer asserts that

*Read at the fiftieth annual meeting of the Medical Society of Virginia, at Richmond, October 28-31, 1919.

the walls of all diverticula, acquired or congenital, are supplied with so little muscular structure that they are practically inert and urine therefore tends to stagnate.

Undoubtedly diverticula may be congenital as instances have been reported in infants and small children and it would seem that in most of such cases there must have been some congenital defect in the bladder as a primary etiological factor. That this is not difficult of appreciation, Bryan goes into the embryological development of the bladder and states that in view of this fact the allantois is destined to subserve a complex three-fold duty: first of dilatation proximally to substitute the bladder; second, obliteration mesially to form the urachus; and third, vascularity distally to connect with the placenta.

Even minute pathological deviations from original foetal design would result in adult vesical anomalies which are readily transformed into an abnormal state by the embarrassment of urination seen so commonly in the elderly male. That some are acquired either at the point of some congenital defect or elsewhere seems easily explained; even the occurrence of an occasional traumatic case seems plausible.

The number varies: in either the congenital or the acquired types they may be multiple, though usually there is a large sac and one or more small ones. It is doubtful if those cases of extreme trabeculation of the bladder wall can be classed as multiple diverticula though some writers state that this question depends on how deep one says an intramuscular depression shall be to give it the dignity of a specific name. They occur almost exclusively in the male, very few cases having been reported in the female. As regards location, the statistics of the Mayo Clinic show that the greatest number were found near the base of the bladder on the right wall, the base being next in frequency, and a few cases of the dome.

In the absence of infection the symptoms are mild; with infection (usually colon) there occurs a severe type of cystitis, with very foul urine, due to residuum, frequency of urination, dysuria and nocturnia. Diverticula of the bladder should be suspected in all cases of severe intractable cystitis of long standing accompanied by very foul urine. Differential diagnosis, however, should exclude obstructive lesions and disease of central nervous system, which not infrequently coexist. Occasionally there is a history of apparently emptying the bladder completely and directly after, following some change of posture, the patient will pass a considerable quantity of foul urine. It is almost pathognomonic of diverticulum to have a considerable amount of urine thick with pus escape from the catheter just at the time the bladder was supposed to be entirely empty.

The diagnosis is strongly suggested by the clinical features but the accurate determination of the condition rests with the cystoscopic examination, the employment of the leaded catheter and X-ray, and the use of cystograms. In a large number of cases the orifice of the diverticulum is seen through the cystoscope but severe cystitis, cloudy urine, and obstructions or distorted viscus often complicate this procedure. Then again, the orifice may be closed and the diverticulum not recognized at the time of the examination. Cystograms are valuable and are readily done with a 25 per cent solution of sodium bromide as recommended by the Mayo Clinic, a solution that has a double advantage of being cheap and easily sterilized. In difficult cases, the landmarks are more easily associated if the cystograms are made in two diameters and viewed stereoscopically. Palpation and rectal examinations are sometimes of value and, as a last diagnosis venture, we have exploratory cystotomy.

In reviewing the experiences of others and from our own observation it appears clearly that palliative treatment and any form of treatment other than excision of the sac has not given good results. A mortality as high as 83.1 per cent has been reported in cases in which there was a diverticulitis at the time of operation. This rate has been greatly reduced and in a large percentage of cases the convalescence is good, though fraught with a tendency for the wound to heal slowly.

Three operative procedures have been suggested:

1st. Supra-pubic cystotomy, incision of diverticulum in one, two or more places as suggested by Chute to enlarge the orifice for better drainage into the bladder. Such a procedure does not relieve the condition permanently and is not without danger of post vesical extravasation.

2nd. Plastic operation of Squier in which the wall between the bladder and diverticulum

is clamped in two places, then cut between and sutured, thus converting the two cavities into one after the manner of a pyloroplasty.

3rd. Radical extirpation in toto by means of intra- or extra-vesical or combined manipulation, suturing the resulting defect in the bladder wall either from without or within the bladder. Several ingenious ways of handling the indefinite sac of the diverticulum have been suggested and used. Young invaginates the sac into the bladder by means of a suction pump. Lower fills the sac with strips of gauze and thus creates a definite mass for enucleation. Other operators depend on fingers within the sac to guide them in the dissection. After-treatment depends on the individual operator. Some drain the bladder through the supra-pubic wound while others put in a self retaining catheter and sew up the bladder wall tight. It is wise in either case to drain the pre-vesical space either through a stab wound as suggested by Young or through the original incision. Bladder irrigations may or may not be necessary and the urinary fistula, which is often slow in healing in those cases drained supra-pubic, requires some care and attention.

The writer has had three cases successfully operated, all of whom have remained well and free of all symtoms. Radical extirpation was done in two cases and a plastic, after the method of Squier, was done in the other.

NEOPLASTIC GROWTHS TREATED SUCCESSFULLY BY X-RAY AND ELECTRO-THERMIC MEASURES.*

By CHARLES A. PFENDER, M. D., Washington, D. C.

Roentgenologist Sibley Memorial Hospital, Georgetown University Hospital, Tuberulosis Hospital, Washington Asylum Hospital, Episcopal Eye, Ear and Throat Hospital; Instructor in Roentgenology and in Electro-Therapeutics, Georgetown University Medical School, etc.

Malignant growths and the effort to arrest and destroy them is my theme. The title suggests a variety of ammunition, yet this is but a small array of the many measures resorted to for the cure of neoplasmic growths. This multiplicity of remedies speaks favorably for the virulent cerebration which engendered this activity, but on the other hand our weakness is emphasized by this very great variety. We still have no specific for cancer but we have many so-called near specifics which, when properly applied and skillfully combined, will frequently effect the desired therapeutic result. This consummation, we find, is obtained only at the price of eternal vigilance, exercise of exquisite care, and absolutely thorough scientific methods of procedure.

In my hands roentgentherapy has proved the sheet anchor around which other methods radiate to enhance the beneficent result. The application of roentgen-rays in the treatment of malignancies of all kinds has been successful in a large percentage of cases, and x-rays alone sufficed. On the other hand, failure to effect a complete cure in some particularly interesting cases prompted me to seek additional help. During the past four years I have broadened my therapeutic field to a point where I am beginning to feel that we are on the threshold of great possibilities that point to therapeutic visions, the like of which the world has not yet seen. Our inspirations and aspirations, tempered by judgment and confirmed by scientific research, should be enthused and vivified through these profitable experiences and broadened observations of the past.

In the treatment of these cases every effort should be made to establish an accurate diagnosis. Proper tests for the exclusion of luetic infection are indicated in every suspicious or doubtful case. The excision of tissue for diagnostic purposes is, in my opinion, frequently not advisable in cases where the clinical picture is clearly descriptive of the nature of the lesion involved. In advanced cases tissue may be removed immediately before thermo-coagulation and pathological study be done later. Experience has shown that biopsic indulgence, no matter how desirable from a scientific point of view, has entirely too frequently hastened general metastasis and death.

The methods employed by me for the eradication of malignant growths at the present time constitute five agents which may be employed singly or combined and which are of value and importance in the order named:

1. Roentgenization.
2. Desiccation. Fulguration.
3. Electro-thermic coagulation.
4. Surgery.
5. Hypodermic administration of electrolized metallic colloids (copper, selenium, etc.)

Radium also fills a place of importance and

*Read before the Medical Society of District of Columbia, January, 1920.

I hope soon to obtain the desired amount necessary for major work.

This is a brief report of thirty-seven cases of cancer of the skin and mucous membranes of the head, involving the cheek, ear, eye, lip, nose and tongue. They comprise cases of basal cell cancer of the skin, squamous cell epithelioma of the skin and mucous membranes and epithelioid neoplastic tumors of various kinds. Twenty-two of thesre cases were treated by x-rays alone. Three more difficult cases were treated by electro-thermic coagulation, combined with x-rays. Nine cases were first given a desiccation or fulguration treatment immediately followed by x-rays. Three were preceded by surgical excision, followed by x-ray treatment. Cases in which I have used colloidal copper and selenium are too recent to justify conclusions. The results of this adjunct have been so decidedly beneficial in some cases, however, that I am employing the method more extensively now and expect to report cases later.

Fulguration. This is the application of the unipolar long spark of high frequency and high tension. This current is usually obtained from an Oudin resonator. The destruction of tissue by this method lends itself happily to the more delicate work for superficial lesions.

Desiccation. Based on the theoretical deduction that heat effects range in degree from hyperemia to burning, and somewhere between these two extremes there is a point the effect of which is more than hyperemia and less than burning, which may be called the desiccation point. William L. Clark treats malignant neoplasms by heat sufficient to cause rapid desiccation of the neoplasms, srterilizing and converting them into an inert mass.

Electro-Thermic Coagulation. Pfahler defined electro coagulation as the destruction of the malignant disease by coagulation produced by the heat generated in the tissue, because of the resistance to the flow of the high frequency current. The current is applied by means of the bipolar electrodes. The indifferent electrode should be quite large, not less than 6x6 inches square, moist and snugly applied to the skin. The active electrode is usually pointed. The destruction of tissue by this method is the result of coagulation. A local or general anesthetic is necessary as the application of this current effects extensive removal of diseased and normal tissue. The method is a most effective one and bloodless, as all the smaller arteries and veins are coagulated. The slough separates in from ten to fifteen days and complete rapid recovery follows. In one of my cases, one third of the tongue was removed without difficulty or hemorrhage. Doyen, who was probably the first to apply electro-coagulation of tissue, reported the successful treatment of all varieties of cancer which are readily accessible, and today electro-coagulation is considered by advanced roentgentherapists the most valuable adjunct to x-rays in the treatment of cancer of the skin, lip, tongue, tonsils, pharynx, larynx, cervix uteri and rectum.

Chemical or Electric Colloids. Copper, selenium, cholin, etc., promise to be of value as adjuncts to roentgen-therapy. I have used them in comparatively few cases thus far, and I have noted distinct improvement when selenium or copper colloid was administered in cases where roentgen-rays alone appeared to have little effect on the tumor.

It has been shown experimentally that particles of colloid copper can be demonstrated in the granulations of cancerous growths after two or three injections of the colloid. Clinically there is usually relief from pain, appetite and strength return, gain in weight is noted and in many cases a diminution in the size of the tumor. From my personal observation of the action of colloidal copper and selenium, I am inclined to think that probably these adjuncts serve a function akin to that of formation of antibodies, increasing the bodily resistance, and neutralizing to some degree the toxic products formed by the destruction of the pathological cells.

The injections of these colloids are made intravenously or intramuscularly. The dose ranges from three to five c. c. every four days or oftener, with such intervals as are indicated by the clinical observations. There is no constitutional reaction and the local signs are practically *nil*. Needless to say, the most scrupulous aseptic measures are imperative.

I shall present only a few representative cases illustrating the conditions usually encountered and the methods employed in combating the neoplastic growths.

Cancer of the Cheek. Six cases were treated by x-rays alone, seven were treated by ful-

guration, followed by roentgen-therapy. All showed improvement with complete cure in twelve cases. The exception was noted in the case which withdrew from observation and the subsequent history has not been obtained.

1. Mrs. E. A., age 50; epithelioid growth the size of a quarter on left cheek of five years' duration. Wound ulcerating recently. Referred by Dr. Wm. P. Reeves. Treated by roentgen-rays April 23 and May 14, 1918. Complete cure. When last seen on September 30, 1919, patient was still entirely well.

2. Mrs. M. F., age 55, referred by Dr. L. H. Taylor, April 27, 1917. Had small growth on right cheek external to oral angle for about thirteen years. Began to increase in size three years ago. Treated by caustics and similar methods without improvement. Ulcerated area size of a dime and two distinct nodules persisted. Patient consulted Dr. Taylor for cosmetic reasons and because she was becoming worried as to its possible malignancy. Three treatments by x-rays were given April 27, May 8, May 21, 1917, with complete recovery. No signs of recurrence to date, two and a half years ago.

Roentgen-Therapy and Fulguration Combined. 1. J. C. A., male, age 80, machinist. Four epithelioid growths below both eyes and at angle of mouth. Referred by Dr. Clarence Weaver, March 19, 1918. Three treatments of roentgen-rays effected complete recovery by April 5, 1918. Two new nodules formed about an inch distant from the healed scar on November 27 of the same year. Two applications of x-rays, preceded by fulguration caused the neoplasms to heal entirely and to remain healed until August 19, 1919, when recurrence was noted in the skin below the eyes. An intensive dosage ofr x-rays was applied with immediater improvement. Since then the patient has remained well.

2. W. H. B., age 78. History of "smoker's cancer" of right lower lip, excised surgically seven years ago. No recurrence. Referred March 12, 1919, by Dr. S. S. Adams for tumor at angle of right jaw, size of chestnut, which was first observed about four months ago. In addition there presented two small epithelial skin tumors beneath the eyes. Thermo-coagulation under local anaesthesia with entire destruction of the large growth in the angle of jaw with fulguration of epithelial masses. X-rays were applied immediately afterwards. Sloughing occurred very slowly and repeated roentgen treatments were administered. By September 20, 1919, the cancerous growth had completely disappeared and the skin was clean throughout. (Fig. 1.)

Figure 1.

3. E. R., male, age 80, referred by Dr. Louis Mackall, March 28, 1919, for pedunculated ulcerative tumor of right cheek. Fulguration and roentgenization eradicated the neoplasm in one treatment.

4. W. J. W., male, compositor, age 58, referred by Dr. Speeden for malignant ulcer, size

of quarter at the left temple. This began five years previously. Fulguration and roentgen-therapy applied March 7, 1919. Completely cured by April 11, 1919, after one treatment. In August, slight irritation of the skin was occasioned by a slight trauma and recurrence was suspected. Slight fulguration and x-rays were applied with prompt healing.

Cancer of the Lip. Five cases of cancer of the lip were treated, one by surgery followed by x-rays, three by electro-coagulation and x-rays, and one by x-rays alone. All lip cases were completely restored to normal with the exception of one treated by x-rays alone.

1. F. G., painter, age 61, cancer of the lower lip of four years' duration. The photographs (figure 2) which are shown describe the condition before and after treatment. Electro-thermic coagulation was done with removal of the entire diseased growth. Deep roentgen-ray treatment was given with special attention to the cervical lymph channels. Some of the left lower teeth appeared diseased and proved a source of constant irritation to the wound. These were extracted. The first treatment was given on December 21, 1917, and by March 23, 1918, the patient was entirely well and remained so until February 27, 1919. While driving through the woods at night his chin and cheek were struck by the limb of a tree, bruising the tissues severely and tearing a deep gash into the skin at the angle of the mouth. Infection occurred and this was followed by what appeared to be a malignant manifestation for which he consulted me again. Thermo-coagulation and extensive x-raying were considered advisable, and this was done March 13, 1919. Patient lives quite a distance from Washington and I did not see him until April 14. He was markedly improved by that time but the ulcer had not yet entirely healed. He was treated by roentgen-rays. I saw him May 5th and again irradiated the slight ulcer which still persisted, although the patient reassured me that it did not give him the slightest uneasiness or inconvenience. I have not seen him since that time, but his son told me recently that he was entirely well again.

2. D. W. P., clerk, age 73, referred by Dr. Holt. Presented an ulcer the size of a small coin on mucosa of lower lip which had existed for five years, but had lately increased in size and had become quite painful. Had tried various pastes without success. Electro-thermic coagulation was advised but declined. Would permit roentgen application only, and although powerful applications were repeatedly administered, it appeared to have no effect whatever on the cancerous growth. He definitely refused to accept any other methods that I had found effective in similar cases and sought surcease in pastes, with what result I am not able to state.

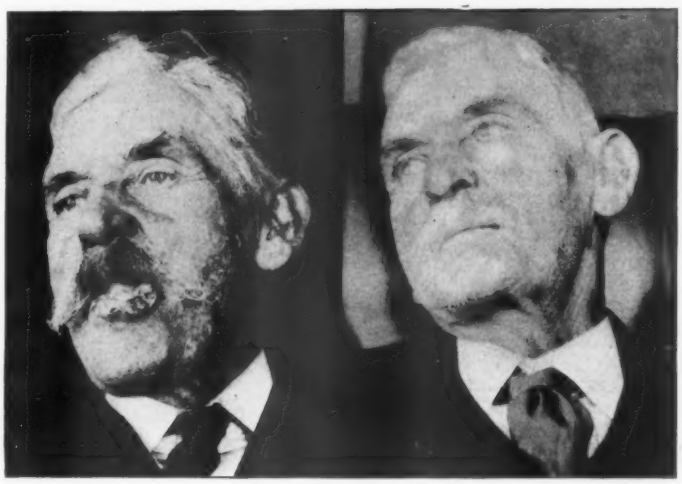


Figure 2.

Cancer of the Tongue. This list comprises only three cases, each case representing a widely different phase. One was hopeless from

the start and yielded to the inevitable; the two remaining cases were quickly cured but one died from dysentery. The other is still well and shows no recurrence.

1. G. E. McM., messenger, age 64, referred by Dr. Hemler for treatment of what at first appeared to be a very slight abrasion on the left lateral margin of the tongue. In four months it had developed to size of a cherry or larger, and showed deep, indurated margins. The ulceration was quite painful and interfered with mastication. Deep roentgen-therapy was applied August 4, 1919. Electro-coagulation under general anesthesia August 7. Removal of about one-third of the tongue. Improvement of the local condition was prompt and the cancer had healed entirely in three weeks. Gastro-intestinal symptoms developed, however, and patient died from exhaustion.

2. Mrs. H. L. T., age 42, neoplasm of dorsal surface of tongue appeared about three months ago and grew rapidly. Electro-coagulation and x-ray application Jun 24, 1917. Received additional x-ray treatment August 5, 1917, and has had no recurrence to date, over two years ago.

Cancer of Eyelids and Forehead.—These five cases give such a varied history and termination that a more detailed account of them is justified. Three were cured, two were improved but died from general carcinosis.

1. J. K. F., carpenter, age 44, referred by Dr. Wm. P. Reeves, April 30, 1917. Notes of the history are as follows:

"Twenty years ago a bruise occurred on outer angle of right orbit; one year later no increased swelling, but ulceration. Cauterized. Remained healed for six months, then recurred. One year later the ulcer was burnt out with acid, but kept getting larger all the time. Thirteen years ago an operation with removal of the tumor was effected. Eye was not affected at that time. Remained healed for about a year, then ulcerated again and grew to size of twenty-five cent piece. At this time he was x-rayed once a week for ten weeks. No improvement. Six months later x-rayed by Dr. Bailey, Collinsville, Pa., for eighteen months at intervals; mass seemed to be disseminated rather than improved. Size of half dollar by now, and of about seven years' duration. Used ointment six years ago and ulcer healed except at angle of eye. Then it began to grow again slowly for about two years. A year ago this ulceration increased to almost half of the face and, in December, 1916, eye became swollen and shut." Present status: Ulcerated area extending from above the ear and front of ear over cheek down to within ½ inch of angle of lip, up and over side of nose, over eye-lid which is swollen size of walnut, and extending from forehead directly back to ear. Size of area involved is about two by four inches, and at angle of right eye is noted a tumor mass the size of a large walnut. The margins of the skin are greatly thickened, rounded and encrusted. Slight hemorrhage at time of examination from small artery which has been eroded. States that he has of late had frequent profuse hemorrhages from the wound. Has suffered considerable pain in the back for the past twelve months; occasional pains in chest. Finally had to stop work March 1, 1917, partly due to pain in back and chest and to loss of blood caused by hemorrhage arising from the ulcerations of the face. On April 30, 1917, I treated him with x-rays and marked improvement was noted by May 10. June 1, fulguration of tumor mass. About this time the pain in back and chest began to become so excruciating that morphia alone would relieve him. There was no doubt in my mind that a general carcinomatous involvement was going on, although, during all this time, the facial cancer was healing rapidly. By June 15, the pain became localized about the shoulder blades and sacral region, and he was so tortured by pain that he was able to walk only while resting his hands on his knees. I finally succeeded in getting him back to my office on July 15 and made a roentgenogram of the chest. This showed clearly that numerous carcinomatous areas were involving the ribs; the metastatic growths no doubt involved the spine and pelvic girdle, but patient was feeling so badly that I refrained from making further roentgenographic study. After treating the back by x-rays over three large areas, the pain in the upper dorsal region disappeared. He now required morphia only for sacral pain. One day he tried to move about the bed unaided and he felt as "though something broke," no doubt fracture of the rib. The local condition improved but general carcinosis caused death December 10, 1917.

2. T. M. R., age 50, printer, referred by Dr. Chadwick for epithelioid growth of outer in-

ferior canthus of left eyelid. This growth had existed for many months and had begun to enlarge during the last four weeks. The tumor disturbed vision and gave rise to considerable pain. Received deep x-ray therapy May 16, 31, June 22, July 18, 1916. Complete recovery with recurrence. Tumor had disappeared and patient was entirely well after second treatment May 31, 1916.

Cancer of the Nose. The ten cases of this series are to me the most interesting of all. Nine of the ten were cured, and the tenth case is still living but suffering. Her disinclination to permit the use of thermo-coagulation continues to subject her to much suffering and distress. This case and one other were the only ones where X-rays alone were employed.

Fig. 3, before and after treatment). Fulguration and one application of X-rays healed the ulcer completely. No recurrence.

3. Mrs. M. J. C., age 93, referred by Dr. George Acker, February 10, 1916, for cancer of the nose, which had eaten away the entire dome of the nose, right and left alae nasi and a large portion of the septum. The trouble started four years ago with a small "pimple" on the tip of nose. A prominent skin specialist unsuspectingly snipped away this little growth with a pair of scissors. The resultant wound failed to heal and progressively invaded the tissues as already described.

Roentgen-ray treatments were given February 10, March 22, May 1, June 17. By June 1st, 1916, the nasal ulceration was entirely

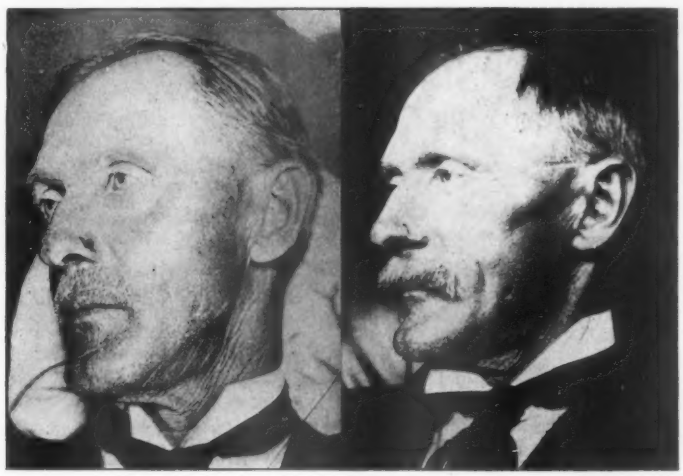


Figure 3.

The remaining eight cases were most successfully treated by combined methods.

1. W. M., male, age 46, referred by Dr. Tewksbury, May 20, 1919. Basal cell epithelioma situated below the angle of the right eye along the nose had existed for more than a year. Ulcerated surface the size of a silver dime. Fulguration under local anesthesia followed immediately by deep roentgen irradiation effected a complete recovery without recurrence to date.

2. J. H. Reid, carpenter, age 54, referred by Dr. Nourse, for malignant ulcer of the nose. This growth had persisted for several years without improvement and lately it had begun to bleed. Photographed March 17, 1919. (See

healed. (See Fig. 4, before and after treatment.)

In July of the same year she developed boils with infection of the face. She recovered and remained well until March 22, 1917, when she took cold, followed by excoriating discharge from the nostrils. Pockets of pus formed and her general conditions failed rapidly, due to senile changes and she died September 22, 1917, in her 94th year.

Conclusions:

1. In the treatment of neoplasms of the skin and mucous membranes, the most satisfactory results are obtained by the employment of combined methods.

2. The proper selection of the method or

Figure 4.

methods to be employed and the skilful application of these agents will determine the high percentage of happy results obtained. Surgery is indicated in every case of metastatic gland involvement.

3. As a rule, the recent cases offer the best prognosis, but surgically inoperable and apparently hopeless cases frequently respond quickly to combined methods where x-rays or radium have failed.

1206 *Eighteenth Street.*

BLOOD PRESSURE AS A MEASURE OF OLD AGE.*

By CHARLES R. GRANDY, M. D., Norfolk, Va.

"A woman is as old as she looks," "A man is as old as he feels," "We are all as old as our arteries," are sayings which we have heard all our lives, and which at one time or another we have accepted without question. But how much truth is there really in them, and what bearing have they, if any, on the time one's life is yet to run? For is not old age merely an expression of the fact that one's life and usefulness are nearly spent?

To examine our maxims more critically, we all have gotten to doubt the first in this age of paint, powder, and false hair. For who sees better than the medical man the difference between the bright complexioned, yellow haired, short skirted dame we meet on the street, and the sallow, gray haired old woman we may be called in to see professionally the next week? It is often hard to believe it is the same person, especially when we have passed the lady at a little distance. Yet we all have cases of this kind in our practice, and we all have at one time or another been forced to replace the saying, "A woman is as old as she looks" by "Looks are often deceiving."

Is then, "A man as old as he feels"? This likewise seems untrue when taken as a measure of life expectancy, for some men are old and sedater in their youth, and many never have the fun and flings which are usually the privilege of youth. On the other hand, when we see officers retired on account of age, dancing and frolicking in the way only very young men should, we know that youthful actions are not necessarily a sign of many years to come.

But if we cannot take our first two maxims at their face value, is it not true that we are indeed as old as our arteries? Old age, and finally death may come from arterial degeneration, and the consequent poor circulation; but how are we medical men to judge this? And how are we to tell the degree of arterial change, and judge from this the length of time the man may be expected to live and work? We formerly judged by feeling the pulse to see if the radials had become sclerotic, but autopsies have taught us that sclerosis may attack other

*Read at a meeting of the Norfolk County Medical Society.

arteries and leave the radials comparatively free, and we have also learned that we frequently could not judge the blood pressure from the way the pulse felt. So we naturally turned to instrumental estimation of ther blood pressure which has been made easy by the various clinical sphygmomanometers. We have tried by using this instrument to interpret the adage, "We are all as old as our arteries," and among the first fallacies some one said that the normal pressure was 100 plus the persons's age. This has been accepted so literally by some that one patient of mine was quite worried at the thought that a doctor could always tell her age simply by taking her blood pressure. I had to assure her that no rule held in estimating age when it applied to the female of the species, as one could not even tell a mare's age from looking at her teeth. But this rule also does not hold true with men, for I know active, well preserved men in their seventies or eightires with sytolicr pressures below 140.

Again, some one said that a person with a pressure of over 200 would not live two years, and many a young physician has hazarded a prognosis on this observation alone, frequently to find that he had been mistaken. How long can a patient then live with such a pressure? Frankly, I do not know, but I do know women who had a pressure of 200 ten years ago, and who are still alive and apparently not much nearer death than they were at that time.

At other times we find one patient with a pressure of 200, but with few, if any, other symptoms, while her younger sister with a pressure of more than fifty points lower has a loud systolic murmur at the aortic, cardiac hypertrophy, and pain along with the head noises, headaches, vertigo, and mental changes, typical of arteriosclerosis. In my judgment the younger sister doubtless has more general arterial changes than the other, though I would hesitate to predict which would outlive the other. I will quote a recent article by Moschowitz, which throws interesting light on this question: "The fact that hypertension occurs as a rule at that time of life when sclerotic lesions of the arteries become prominent, has led many to believe that the sclerotic changes are the cause of hypertension, but there is no fact more easily demonstrable in every autopsy room than that profound sclerotic changes may be manifest without the slightest evidence of hypertension during life, and conversely that an extreme hypertension may be present with little or no changes in the blood pressure. Indeed, there is no relationship between the extent of the arteriosclerosis and the height of the blood pressure."

This, however, does not say that hypertension and arteriosclerosis are as a rule concomitant, but merely that the extent of one cannot be measured by the other.

What then is the significance of hypertension in regard to old age and life expectancy? Hypertension is now held to be a compensatory process, brought about by the attempts of the circulatory apparatus to regulate the proper distribution of the blood. Certain it is, that high arterial tension is perfectly compatible with well being, and is often only discovered by pure accident, as was true in the case of a negro preacher with a pressure of 240 who merely complained of some "wheezing in the chest," and who was not thereby prevented from exhorting the faithful, and eating all the fried chicken Providence provided.

From the modern viewpoint, a circulation in which high arterial tension is an element, is in a state of decomposition; that is, its maximum efficiency is impaired, but how much it is impaired must be judged from other symptoms. Whether the hypertension is the result or the cause of the arteriosclerosis is also debatable. What, then, is the normal adult blood pressure? It is now generally considered to lie between 105 and 140, whether the man be twenty-five or seventy-five, variation above or below these figures showing circulatory decomposition. It is important to find out at what pressure the circulation is best maintained and the man feels most comfortable, or, as it may be expressed, what is the optimum pressure. Several observations are necessary to find this, and also to eliminate the hypertension which nervous individuals can temporarily add to their usual pressure. How much significance there is in this nervous exacerbation I yet do not know, but almost all women can be made to run up their pressure under excitement. Such an exacerbation has been responsible for many faulty prognoses, especially when coupled with the false assumption that a pressure of 200 means death in two years. A progressive rise in "optimum pressure" means an increasing decompensation, and is usually followed by other signs of aging. What these signs are depends

in part at least upon the seat of the trouble which gives rise to the increased difficulty in circulation, and the consequent increase in pressure necessary to maintain it. If the trouble is mostly in the peripheral vessels we have the loss of flesh and strength, the cramps, and the senile changes in the skin and hair. If it be in the heart and aorta, we find at least in the advanced cases the cardiac hypertrophy, the changes in rhythm and the heart sounds, the dyspnoea and precordial oppression, or pain. If it be intracranial, we have the headache, the dizziness and head noises, or irritability and change in disposition, or loss of memory and mentality, and the symptoms often called "second childhood," or perhaps we may have a senile dementia. It the changes be mostly in the kidneys, we may have uremic symptoms which overshadow the usual symptoms of age and poor circulation. Of course, we may, and generally do have changes in more than one of these general divisions, with a consequent mixture of symptoms, though we can usually find a predominant type by which to classify the case.

It seems hardly necessary to draw attention to the fact that a fall in blood pressure to below the optimum often means that the heart is weakening, and is it least unable to do the work that is expected of it. When this is pronounced we may have all the signs of "broken compensation" at times associated with fibrillation. I have seen the pressure drop as much as 80 points at such a time, but the patient rally under rest, morphine, and digitalis. Again, I have seen a struggling, fibrillating heart push the blood pressure of its strongest beats well above the optimum pressure, though the weaker beats were much below it. In this case digitalis and rest reduced the pressure of the heavy beats.

From what I have just read, it can readily be seen that the saying, "We are all as old as our arteries," or better still, as our circulatory apparatus, is in large measure true. But we cannot judge of life expectancy by the feel of the radials alone, or by the blood pressure, any more than by whitening of the hair, which in some families comes early, and in others late, in such cases apparently having little or no influence on the health of the individual. But increasing greyness of the hair, a loss of flesh and senile changes in the skin, when accompanied by an increasing optimum pressure, show circulatory changes which should not be neglected, as these are warnings that the man must not lead such a strenuous life as he has been leading. Attention to these signals will often allow life to be prolonged many years. Women usually obey them better than men, which explains in part at least, why women live as a rule longer than men with elevated blood pressure. I do not mean by this that a man should always be told to stop his work and be left to fret and worry, for the last state may be more harmful than the first, but merely that he be taught to live sanely, slowly, and cheerfully, to do the best he can in life, and not worry over impossibilities, for in such cases it is indeed worry that kills. And it is well to be remembered that a bad prognosis given to such a patient may hasten his death.

To return once more to our maxims, a person's looks as evidenced by white hair may mean little or nothing. A slowing down in youthful activities may actually prolong life. A high blood pressure may under certain circumstances persist for years, and the person be able to live and work. But when changes in the blood pressure are accompanied by progressive changes in the looks and in the actions of a man, it is time for the medical man to step in and warn the patient to slow up and take care of himself, or else be ready to take the consequences.

Bank of Commerce Building.

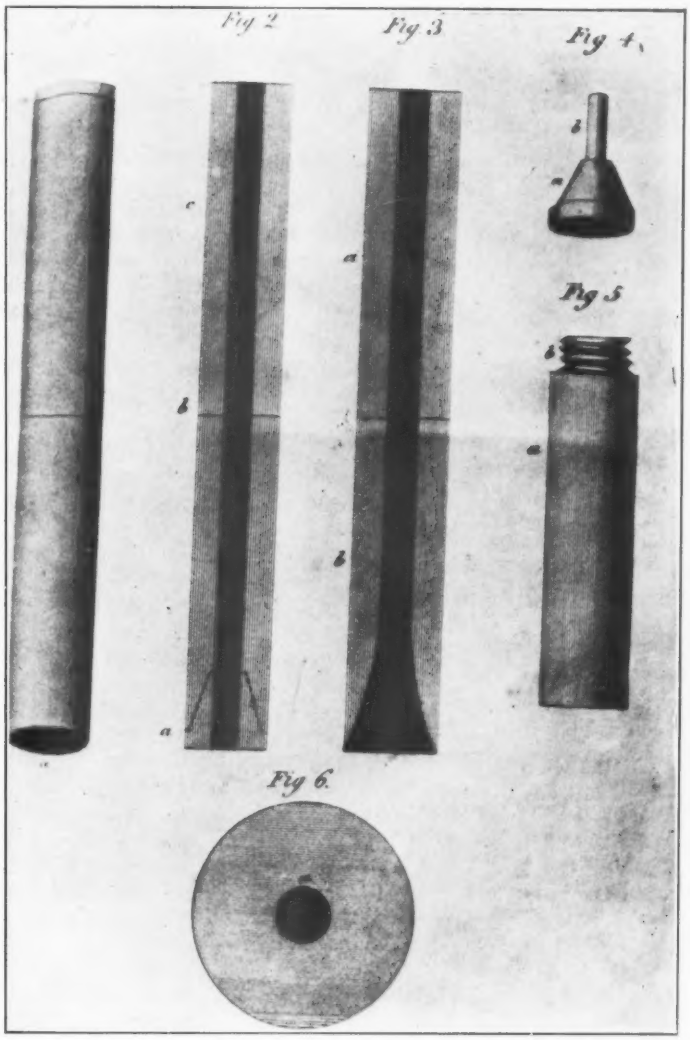
LAENNEC'S STETHOSCOPE.

By S. W. DICKINSON, M. D., Marion, Va.

The fact that one hundred years ago Laennec discovered the stethoscope has received appropriate notice in most of our medical journals.

On page 239 of the December, 1919, number of the VIRGINIA MEDICAL MONTHLY, under the heading "From a Child's Toy," we read that Laennec, "observing some children playing in the gardens of the Louvre, listening to the transmission of sounds along pieces of wood, conceived the idea of utilizing this method of listening to breath sounds in examining patients' lungs. He went home, fashioned a tube by rolling up some glued paper and then experimented with this in his wards at the Necker Hospital. From this incident in the garden dates the modern stethoscope, an instrument well-nigh indispensable in the modern practice of medicine."

I have before me a copy of the first American reprint (dated 1823) of Dr. John Forbes' English translation of the first edition of Laennec's book, published in 1819, and on page 211 he gives the following account of how he came to make this discovery. "In 1816 I was consulted by a young woman laboring under general symptoms of diseased heart, and in whose case percussion and the application of the hand were of little avail on account of the great degree of fatness. The other method just mentioned (applying ear to chest, S. W. D.) being rendered inadmissible by the age and sex of the patient, I happened to recollect a simple and well known fact in accoustics, and fancied at the same time it might be turned to advantage on the present occasion. The fact



This cut shows Laennec's stethoscope reduced to one-third of its actual dimensions. Figure 6 in this cut shows actual diameter of stethoscope.

I allude to is the augmented impression of sound when conveyed through certain solid bodies—as when we hear the scratch of a pin at one end of a piece of wood on applying our ear to the other. Immediately on this sug-

gestion, I rolled a quire of paper into a cylinder and applied one end of it to the region of the heart and the other to my ear, and was no little surprised and pleased to find I could thereby perceive the action of the heart in a manner much more clear and distinct than I had ever been able to do by the immediate application of the ear. From this moment I imagined that the circumstance might furnish means for enabling us to ascertain the character, not only of the action of the heart, but of every species of sound produced by the motion of all the thoracic viscera."

Then followed a long series of observations and experimental work at the Hospital Necker, and the verification of these observations by post-mortems, which led to the production of two books, the first, from which I quote, published in 1819 and a revised and much enlarged edition in 1823, in which he standardized and made exact our knowledge of diseases of the chest and gave us a common phraseology, for many of the terms now in use, as "rales," "pectoriloquy," etc., we have taken over directly from the French of Laennec.

Added to all this work by which he was "enabled to discover a set of new signs of diseases of the chest," destined to make his name immortal, he experimented to find the best material and construction for the conveyance of sound. I give a photographic reproduction of a plate showing the instrument used by Laennec in 1819 which he describes s follows:

"It consists simply of a cylinder of wood, perforated in its center longitudinally, by a bore three lines in diameter, and formed so as to come apart in the middle, for the benefit of being more easily carried. One extremity of the cylinder is hollowed out into the form of a funnel to the depth of an inch and a half, which cavity can be obliterated at pleasure by a piece of wood so constructed as to fit it exactly, with the exception of the center bore, which is continued through it, so as to render the instrument in all cases a pervious tube. The complete instrument,—that is, with funnel shaped plug infixed — is used in exploring the signs obtained through the medium of the voice and the action of the heart, the other modification—or with the stopper removed—is for examining the sounds communicated by respiration. This instrument I commonly designate simply the *Cylinder*, sometimes the *Stethoscope*."

Clinical Reports

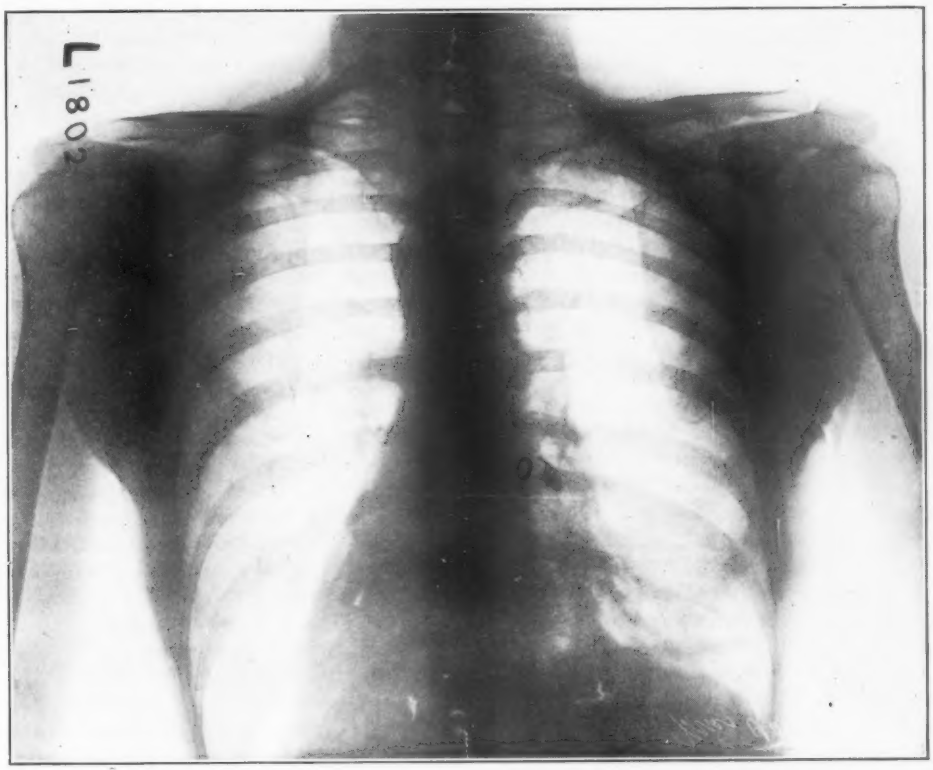
FOREIGN BODY IN RIGHT INFERIOR BRONCHUS; REMOVAL BY USE OF THE BRONCHOSCOPE.

By ELBYRNE G. GILL, M. D., Roanoke, Va.

Patient, Ida F., age 50, was referred to me February 19th, 1920, by Dr. B. L. Taliaferro, of Catawba Sanatorium.

Patient gave the following history: Seven years ago she was struck in the left temporal region by an axe, which rendered her unconscious. Since that time at various intervals she has been subject to attacks of epilepsy. Five years ago during an epileptic seizure, patient fell and struck her head upon a cement floor. A false plate of teeth was broken and a small portion of the plate was never found but the patient and her family dismissed it as being lost. Shortly following the accident the patient began having an itching and tickling sensation in her throat which gradually developed into a cough and became steadily worse, more so at night. Eighteen months after this injury the patient was bending over in order to clean out a springhouse and at this time had a hemorrhage. She has had hemorrhages at various intervals since, but only when stooping over. Last fall, the patient's chest was X-rayed at the Catawba Sanatorium, Virginia, and the presence of a foreign body was discovered in the right bronchus. She was then questioned as to the history of having aspirated a foreign substance into her lung and recalled that she had broken her false plate five years before and that a small portion of it was lost at the time of the accident.

I referred the patient to Dr. J. T. McKinney, of this city, for further X-ray examination and the following is Dr. McKinney's report: "Stereoroentgen examination, with antero-posterior and postero-anterior plates of Ida F.'s chest shows a foreign body more or less oblong in shape, about one and one-fourth cm. by one cm. in size, lying obliquely in the inferior or descending branch of the right bronchus. The foreign body is lying opposite the 9th rib, using posterior markings, and opposite the 4th interspace using anterior markings. There is considerable pathology noted at the base of the right lung, involving to some extent the parenchyma of the lung, a few small emphysematous areas being present. There is a marked peribronchial thickening



and fibrosis of the branches of the descending bronchi. The possibility of there being a few adhesions around this foreign body should be taken into consideration. No definite areas of tuberculous infiltration are seen in either lung."

The following is the report of Dr. B. L. Taliaferro, physician in charge of Catawba Tubercular Sanatorium, Va.: "On admission to the Sanatorium she gave her history as follows: Usual diseases of childhood; good recovery. Has had hay fever, otherwise negative. Was perfectly well until five years ago. Illness began with tickling in throat, bad cough, profuse expectoration, small hemorrhages, loss of strength, night sweats with moderate rise of temperature at times. This patient was diagnosed as having tuberculosis and was admitted to Mt. Regis Sanatorium. I have no record of her exact stay at Mt. Regis but I think it was at least three weeks. She was then admitted to Catawba Sanatorium April 2, 1919. Physical examination showed a few fine rales in right apex with slight broncho-vesicular breathing and slight increased whispered fremitus with dullness. In the right back she had a few scattered rales from the third to the sixth dorsal spine. On admission, her sputum showed positive Gaffky two. The day after admission she had a pulmonary hemorrhage of about a dram of blood. She continued from time to time to have heavy streaks or slight hemorrhages, none of which exceeded an ounce during her stay here. Cough severe and expectoration profuse in the morning. During the rest of the twenty-four hours, cough and expectoration slight. She had several convulsions which were probably epileptic in character. This patient was kept in bed almost continuously on account of her tendency to hemoptysis. Her symptoms did not appear to improve after severarl months' continued rest in bed but on the other hand her expectoration increased in amount. The profuse expectoration and the slight physical findings led us to believe that possibly this patient had a deep-seated cavity or a bronchiectasis and she was advised to have stereoscopic X-ray plates tak-

en. The X-ray showed a foreign body in the right lung behind the fifth rib. This body appeared to be something over a half of an inch in diameter and gave the appearance of possibly being a flattened bullet of about a thirty-two caliber. On close questioning the following facts were brought out which the patient did not give in the history on admission. She said that about seven years ago she was walking behind a man who was cutting wood and was accidentally struck over the right eye by the pole of the axe. Since that time she had been subject to fainting spells which we had diagnosed as epilepsy. And that about five years ago in one of these attacks she crushed her plate of false teeth. After the attack was over she felt as if a part of this plate had lodged in her wind pipe and that her cough and expectoration dated from about that time. Repeated examinations of her sputum were constantly negative except the first examination which was made on admission. The patient was advised to have an operation performed to have this foreign body removed."

On February 29th, 1920, I sent the patient to the Lewis-Gale Hospital, and on March 1, 1920, under ether anesthesia, I removed the foreign body from the right inferior bronchus. Time of the operation was ten minutes. I used the Jackson Adult Bronchoscope and Jackson's Alligator Rotation Forceps for extracting the foreign body. The adhesions surrounding the foreign body were very adherent and when the foreign body was pulled away a slight hemorrhage followed. I am greatly indebted to Dr. J. T. McKinney for his accuracy in locating this foreign body and for the skillful manner in which he used the fluoroscope at the time of the operation. Patient had a slight hemorrhage following the operation, also a slight elevation of temperature for two days. Since that time her recovery has been uneventful and complete. The uncontrollable cough from which the patient suffered for the past five years disappeared the second day following the operation, not to return.

MacBain Building.

SCLERODERMA AND COMBINED SCLEROSIS OF THE SPINAL CORD.*

By D. R. MURCHISON, M. D., Richmond, Va.

This case is being presented chiefly because of the interesting combination of two rather unusual conditions.

The patient is 45 years of age and single. His family and personal history are unimportant, but it may be said that there is no history of nervous or mental disease in the family, and the patient denies luetic infection.

The onset of the present illness began in the autumn of 1915, following an attack of grippe, which was acquired during exposure to very severe weather. At the time he was working as construction foreman for the government near Pittsburgh, and had been very thoroughly examined by the government physician about six months before, the physician remarking then that the patient was an unusually good specimen of man and appeared in perfect health. This examination is said to have included tests of his reflexes. About two weeks after recovering from the grippe, the patient began to feel a weakness in his hips and legs, with a good deal of fatigue on slight exertion. The weakness was most noticeable in walking up the steps, and he continued to have it in spells of a few days or weeks, with intervals of the same duration, in which he was quite free from symptoms. As the year passed, there seemed to be a tendency for the weakness to improve, and he thought he was getting well when his hands began to swell.

This appeared just about a year after his attack of grippe; the swelling, attended by pitting on pressure, persisted for six months, during which time he had some numbness in his hands and also a stinging sensation, especially on touching things, when there was a feeling of burning. Finally, the swelling began to subside, and then the skin of his entire head, trunk and arms became stiff and tight, associated with an intense brownish pigmentation diffusely spread over all the involved area with the exception of his face. This tightness and pigmentation developed rather slowly, but became very extensive, the tightness making all motion of the joints involved quite difficult, even including motion of his jaw in eating. He soon went to Mercy Hospital, Pittsburgh, where a diagnosis of scleroderma was made. From his account, it seems that he was given a glandular extract which he continued to take for about three months. There seemed to be little change in the skin condition until 18 to 12 months ago, since when there has been great improvement leaving him at present with his wrists and hands as the only grossly involved areas, and

* Read before Richmond Academy of Medicine and Surgery, April 13, 1920.

a faded, light brown, macular rash over his abdomen and chest.

On the appearance of the swelling of the hands, the weakness in his hips and legs returned and increased gradually, attended by some loss of control of his legs, making him dependent first on one cane, later on two, and now permitting him to walk only short distances with the greatest dirfficulty. For the past year or more, he has had a feeling of constriction, or girdle sensation, about his waist, which also extends down both legs, described by him as if his trousers were pressing too tightly on his waist and legs. There has been an occasironal tingling srensation down the right arm during the past 8 months; he admits greater difficulty in walking in the dark; there has been a loss of libido and potentia since the onset; control of the urinary and rectal sphincters has been disturbed, but not entirely lost, amounting chiefly to inability to completely empty his bladder or rectum, or perhaps to delay in starting the act.

About a year ago, while taking a short walk, he had a sudden and complete remission of all difficulty in walking, which, however, unfortunately lasted only through the length of one block. After reaching that distance, his disturbance returned as it had been before, and has never disappeared since, although it is favorably influenced by good weather. It is also important to emphasize that he has had no pains in or about the spinal column nor any spinal root, or lightning pains. Besides the tingling and numbness mentioned above, his only sensory symptom has been a dull pain or aching over the supra-pubic region extending through to the sacrum.

Only the positive and negative points of interest in the physical examination will be included. The skin over the face is somewhat atrophied and feels a little hardened, but still may be picked up in small folds between the fingers. Palpation here and over the arms, trunk and legs gives the impression of induration of the subcutaneous tissues rather than the skin itself. There is the faded macular rash over the abdomen and chest mentioned in the history. On the dorsum of both wrists and hands the skin is tense and shining or atrophied to a greater extent than on the face. Except for the fingers, where the skin itself is indurated, the underlying tissue is more involved. Most of the fingers are intensely hard, flexed, and show greater or less limitation of motion in their joints. There is, or has been from time to time, ulceration about the knuckles, which is reported as characteristic, and there is a slight diffuse brownish pigmentation of the two hands.

Examination of the eyegrounds reveals a lack of distinctness of outline of the upper-mesial quadrant on both sides, with a definite pallor of the same quadrant, this being more marked in the left eye than the right. The retinae and vessels appear normal.

There is slight impairment of hearing the tick of a watch in both ears.

There are frequent intermittences in the heart beat, which the patient says have existed since childhood.

Rectal examination is negative.

The knee-kicks are very much exaggerated on both sides, resulting in several clonic jerks by a light stroke with the reflex hammer. The ankle-jerks are just obtained with the patient in an ideal position. Babinski and Oppenheim reflexes are readily and typically elicited on both sides. There is a well maintained bilateral ankle-clonus, but no patella-clonus.

There is a loss of muscle-sense in toes, ankles and, to less extent, in the knees. The patient is unable to perform the knee-to-toe movement with the heel of the opposite foot. The abdominal reflexes can nowhere be obtained, while the cremasteric is normally active. The patient sways and would fall, if allowed to, when standing with his eyes closed or look at the ceiling. There is a marked hypertonicity of both lower limbs. Testing the muscle power of the legs, it is found that the patient cannot voluntarily flex with any power or against much resistance the thighs on the trunk. This is more marked on the right than on the left side. Dorsal flexion of the feet is also impaired. The power in the triceps of the arms is poor, as is also that of the extensors of the hands. The gait is spastic, with a dragging of the toes, and walking with a wide base.

In testing the sensory system, the only disturbance noted is in the thighs, legs and feet. There is some hyperaesthesia to a pin-prick over this entire area, although the patient cannot localize the stimulus when applied below the knee, and poorly even in the thighs. Touching or rubbing with a camel's hair

brush produces no sensation in the right leg, up to just above the knee, and in the left to a level just below the knee. Over this area of anaesthesia, he cannot distinguish between heat and cold. His tactile- and heat-sense are impaired, though not completely lost in the thighs up to the buttocks behind and the symphysis in front. He cannot feel the vibrations of a tuning-fork, applied on the skin or on the prominent bony points like the tibiae or iliac crests or sacrum behind. The lowest level in front in which he is sensitive to the tuning fork is the ribs, and behind about the tenth rib, with diminution of the sensation over the spine as high as the mid-scapular region. He can, however, feel the vibration very distinctly on the scapulae.

The following are the important negative points. The pupils are normal. There is no nystagmus, intention tremor, scanning speech, fibrillary twitching, or atrophy of muscles. The prostate is normal. There is no deformity, limitation of motion or pain on deep pressure or percussion over the spines.

All the laboratory findings are negative, essentially, with the exception of a very faint trace of albumin in the urine, which probably is of no importance. Red blood corpuscles, 5,250,000; hemoglobin, 100% (Sahli); white blood corpuscles, 7,350; polymorphonuclear neutrophiles, 71%. Stools show no parasites or ova. Blood-Wassermann is negative. It has been quite impossible to obtain permission to do a lumbar puncture, and while this is the most important of all tests, it is the only one consciously omitted. To do him justice, it should be said that he has a good reason for postponing this procedure now.

While it is surely possible that the nervous lesion is luetic in character, it is felt that this is as unlikely as it is ever safe to say without the desired laboratory information. I should like to say here that the lack of information of the spinal fluid contents made me hesitate to present this case before the Academy, but finally decided to do so only after consultation and approval by one member of the program committee.

In conclusion, it seems plausible that in addition to scleroderma which has left only a residue, the patient has combined sclerosis of the spinal cord.

301 *East Franklin Street.*

Discussion.

Dr. B. R. Tucker thinks that at first there was probably incomplete transverse myelitis which led to the combined sclerosis, both being dependent upon the preceding influenza. It is rare to see a spinal cord affection like this combined with anything else. Though the spinal fluid might prove negative, it is a pity that it is not available for examination for the possibility of spinal-cord tumor may not be dismissed without it. It is not absolutely essential to find pain accompanying these tumors, especially in the beginning. Developing slowly, we might find all of the symptoms noted.

Dr. C. C. Coleman gathered from the report that there was a Brown-Sequard lesion. Pallor, unless pronounced, has no decided bearing on multiple sclerosis. Under the circumstances, spinal-cord tumor is as good a diagnosis as can be made.

Dr. R. F. Gayle: We frequently see cases of disseminated sclerosis without the classical symptoms of marked tremor, nystagmus, scanning speech, etc. The thing that struck me particularly in this case, diagnosed combined sclerosis, is that in these cases the lesions of the posterior column of the cord generally predominate, whereas, in this case the lesions of the lateral and pyramidal tract seem to predominate. In most of the cases of combined sclerosis that I have seen, there has been a change in the blood picture, either a severe secondary anemia or a pernicious anemia.

Dr. J .M. Hutcheson saw the patient two and a half or three years ago, when he presented an example of typical scleroderma. Looking over his notes, made at the time, he found he had noted the presence of ankle clonus, which he did not attempt to explain. He said that he sees scleroderma very seldom, and that it is stated to be frequently secondary to other diseases with improvement unusual.

Dr. Murchison, closing the discussion, said: While combined sclerosis has seemed the more probable diagnosis, spinal cord tumor has to be borne in mind; and I have felt, furthermore, that in the event the patient goes North for a prolonged stay and treatment, which he has under consideration, an exploratory laminectomy might be suggested merely on the basis of the present findings, of course after certain other investigations have been carried on, principally lumbar puncture and X-ray. Finally, I should like to repeat and emphasize a point made by Dr. Hutcheson. While scleroderma is certainly rather unusual itself, it is distinctly more unusual to have such definite and marked improvement take place as has occurred in this patient.

The Frank S. Betz Company,

Hammond, Ind., which has heretofore operated on a direct mail order business, has purchased the entire stock and business of the Crown Surgical Instrument Company, of New York City, and has recently opened a complete exposition and sales room at 6 and 8 West 48 Street, that city.

Proceedings of Societies

Richmond Academy of Medicine and Surgery.

At the regular bi-weekly meeting, held on April 13, 1920, Dr. J. Garnett Nelson, president, in the chair, Dr. H. A. Brady read a paper entitled *Etiology and Diagnosis of Renal Hematuria*, which was discussed by Drs. W. S. Gordon, J. M. Hutcheson, W. A. Porter and Brady.

Dr. D. R. Murchison reported a case of *Scleroderma and Combined Sclerosis of the Spinal Cord*,* which was discussed by Drs. B. R. Tucker, C. C. Coleman, R. F. Gayle, J. M. Hutcheson, and Murchison.

Dr. Thos. W. Murrell reported the following case of *Chancre Redux*:

The patient, a young man, was seen in November, 1919, three weeks after exposure, presenting a sore on the frenum. Dark-field examination showed spirochetes. Arsphenamine was immediately given, followed by five other doses at intervals. Mercury was given subsequently. Up to this time the history of the case was the usual one. Two weeks later, a Wassermann was positive. Subsequent to this, a second sore, a typical chancre, appeared near the other, but a half-dozen dark-field examinations failed to show the presence of spirochetes or other organisms. Another course of six injections was given, but the sore only grew larger.

In 1753, John Hunter wrote that frequently large sores that got no better under antisyphilitic measures were to be found near the primary sore, and that other remedies must be used. In the case under discussion, black wash finally effected a cure, the resulting scar resembling that of a burn.

Dr. Campbell Harris was unanimously elected to Fellowship.

MARK W. PEYSER, M. D.,
Secretary.

Rockingham County (Va.) Medical Society.

A meeting of the Rockingham County Medical Society was called for April 3, 1920, at 10:30 A. M., which, owing to the war and various epidemics, was the first meeting of this society since 1917. The meeting opened with a large attendance and considerable enthusiasm. Four new members were admitted and the following officers were elected: President, Dr. J. E. Lincoln, Lacey Spring; recording secretary and treasurer, Dr. A. C. Byers (re-elected), Harrisonburg; corresponding secretary, Dr. G. V. Wood, Jr., Harrisonburg.

On account of the high cost of living, the advisability of increasing fees was discussed, and it was decided to call another meeting to agree on a fair increase. At this called meeting, it was decided to increase all fees 33 1-3 to 50 per cent. Mileage was fixed at seventy-five cents per mile.

Meetings are held monthly in the Chamber of Commerce Building in Harrisonburg.

G. V. WOOD, JR.,
Corresponding Secretary.

Northampton County (Va.) Medical Society.

The regular quarterly meeting of this society was held at Nassawadox, April 21, with a good attendance. Dr. J. McF. Dick, of Salisbury, Md., was present and read an interesting paper on "Cholelithiasis". There were also several interesting papers by local members.

The following officers were re-elected: President, Dr. William J. Sturgis, Franktown; vice-president, Dr. B. H. Gilmer, Cape Charles; secretary-treasurer, Dr. Holland Trower, Eastville; censor, Dr. Carlisle Nottingham, Cape Charles.

After the meeting, the members and their invited guests enjoyed their annual banquet.

HOLLAND TROWER,
Secretary.

The Augusta County (Va.) Medical Association, Inc.,

Held its bi-monthly meeting in Staunton, April 7, Dr. J. B. Rawlings, presiding. Papers were read by Dr. H. F. White, Fishersville, on "Psychology of the Soldier", and by Dr. Alex. F. Robertson, Staunton, on "Nephritis". After discussion, it was decided to raise annual dues to the association from $1 to $2.

This society is in a flourishing condition, with a membership of about forty-eight.

C. C. JONES,
Secretary.

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* For paper and discussions, see page 74.

The Mecklenburg County (Va.) Medical Society

Held its regular meeting in Clarksville, April 16, at Hotel Grace. The attendance was small, but those present had the pleasure of hearing a most interesting talk by Dr. J. W. Henson, of Richmond, his discussion covering much original work. Dr. G. B. Barrow, Clarksville, vice-president, presided. Other officers are president, Dr. A. T. Finch, Chase City, and secretary, Dr. John Drake, Jr., Clarksville. Refreshments were served the doctors at the close of the meeting.

Lee County (Va.) Medical Society.

The secretary of the Lee County Medical Society informs us that his county society is now a thriving, live and wide awake society with about all the doctors in that county enrolled as members. Present officers of the society are: President, Dr. C. C. Pearce, Pennington Gap; vice-president, Dr. J. B. Muncy, Jonesville, and secretary-treasurer, Dr. P. D. Pence, St. Charles. Meetings are held monthly.

The Southwestern Virginia Medical Society

Will hold its regular spring meeting on May 26 and 27 in Roanoke. An interesting program has been prepared, this to include a few papers by invited guests and others by members. A contribution supper is planned for the evening of the 26th.

This Society was reorganized in Pulaski, December 10, 1919, so as to become an integral unit of the Medical Society of Virginia. There are thirty-seven charter members and the following are officers: President, Dr. W. R. Cushing, Dublin; vice-president, Dr. J. A. Noblin, East Radford, and secretary-treasurer, Dr. A. B. Greiner, Rural Retreat. Active members of this organization are residents of Montgomery, Pulaski, Wythe, Smyth and Washington Counties, and the cities of Radford and Bristol. Active members of other component societies of the Medical Society of Virginia will be elected to associate membership.

New Member Of Pharmacy Board.

Governor Davis, on April 22, appointed C. D. Clark, druggist, of Portsmouth, to fill a vacancy on the Virginia State Board of Pharmacy, caused by the retirement of John E. Jackson, Tazewell, Va.

Public Health Department

In The Tuberculosis Field.

In this department of the VIRGINIA MEDICAL MONTHLY last month, facilities available for hospitalization of tuberculosis patients in Virginia were discussed. It was thought advisable to put before physicians of the State some statement of beds available for sanatorium care of their tuberculosis patients, before venturing upon any discussion of the many phases of the tuberculosis problem, a problem touching, as it does, health work at every turn.

In this paper is presented a little work by Dr. John B. Hawes, II, Secretary of the Trustees of the Massachusetts Hospitals for Consumptives, on the early diagnosis of pulmonary tuberculosis. We might as well recognize, without quibbling, that in the successful treatment of pulmonary tuberculosis we must first catch our case in its incipiency; just as that famous authority on rabbit stews first laid it down as a necessary prerequisite to a successful rabbit stew that one must first catch the rabbit. Not until recent years has emphasis been put on tuberculosis, nor a great deal of instruction been given in the diagnosis of this well-nigh universal disease. It is hoped that Dr. Hawes' admirable little pocket note book will be of general interest among readers of the Journal. It was prepared for the Massachusetts Board of Health for free distribution.

In his introductory remarks, Dr. Hawes states that the importance of early diagnosis of tuberculosis has been emphasized very strongly during the past few years. With the advent of the municipal dispensaries, the opportunity for the detection of many cases of this disease which would otherwise escape attention is apparent. That in this physicians are desirous of doing their best is evident from their request for a short but comprehensive statement of the main points that must be constantly borne in mind, if success is to be attained in the difficult problem of the early diagnosis of this insidious disease.

In the form of a "Physicians' Pocket Note Book," Doctor Hawes, discussing diagnosis in adults, gives the following suggestions:

1. Take a careful history of your patient. Ask definite questions in a logical and regular

sequence. Every patient should be asked whether during the years from 15 to 21 he considered himself or was considered by his parents, as of the strong and robust type, the thin and wiry type, or the delicate type. It is important to ask, not, "When did you first feel sick?" but rather, "When did you last feel perfectly well?"

2. Remember the paramount importance of constitutional signs and symptoms.

In most cases, except for a cough, which is usually present, the constitutional signs and symptoms are far more striking than local symptoms.

3. Remember that loss of weight must be satisfactorily explained.

Every patient should be asked, first, "What is your maximum weight?" second, "Your present weight?" third, "What do you consider good average weight in health?" fourth, if the patient has lost weight, "Over how long a period has this loss taken place, and how do you account for it?"

4. Inquire concerning loss of strength and energy.

5. Do not forget the importance of undue fatigue.

6. Continual or occasional evening fever must be explained. The thermometer is not used anyway nearly as much as it should be. In the absence of other definite causes, if a patient is found to be running an afternoon or evening fever of 99 degrees or over, a tentative diagnosis of some such infection or toxemia as tuberculosis is justifiable. Keep thermometer in the mouth at least five minutes.

7. Remember the importance of a subnormal temperature accompanied by a high pulse. This combination is an important one and is often caused by tuberculosis.

8. Remember that a hemorrhage is evidence of pulmonary tuberculosis until the contrary is proved. Failure to observe this rule is causing many tragedies and unnecessary deaths.

9. Bear in mind that pulmonary syphilis is not so uncommon as it is supposed to be. The State Board of Health makes the examination free.

10. Remember that early cases of exophthalmic goitre may simulate early pulmonary tuberculosis in every way.

11. Depend more on your thermometer, your history and constitutional signs and symptoms than you do on percussion and auscultation.

12. Remember to use your common sense. Bear in mind that it is a human being, and not merely a pair of lungs that you are dealing with.

Don't forget the following, Dr. Hawes continues:

1. Don't be in too much of a hurry.

2. Don't forget to strip the patient to the waist.

3. Do not expect to find marked signs in the lungs in every case.

4. Do not wait for a positive suptum. Absence of proof is not proof of absence.

5. Don't forget that practically all pleurisies, wet or dry, of idiopathic origin, are tuberculous.

6. Don't forget to look elsewhere than the lungs. Make your routine physical examination as thorough as possible.

7. Don't base your diagnosis on X-ray evidence alone. The X-ray is a valuable adjunct to our means of physical examination; it should never take the place of our older, well-known methods.

8. In adults, do not place any value on the skin tuberculin test, whether positive or negative.

9. Don't forget that chronic bronchitis, influnza, bronchiectasis, emphysema, asthma, and other chronic and subacute conditions still exist and will continue to exist, and that they often resemble pulmonary tuberculosis.

10. Don't forget that the reverse of the above is also true.

11. Don't forget that people may be run-down, tired, weak, etc., without having consumption.

Consideration of Dr. Hawes' book leaves this thought: that perhaps what he says about the use of the thermometer might be emphasized.

While, of course, we see daily far advanced cases which show no elevation of temperature, in many cases it will be of great diagnostic value to keep a temperature chart for ten days, showing the suspect's temperature and pulse at two-hour intervals throughout the day, preferably; or at least at 7 A. M., noon, 4 P. M., and 7 P. M.

Next month it is hoped to present some ob-

servations on the sessions of the National Tuberculosis Association, which meets in St. Louis, Mo., April 22nd, 23rd and 24th.

B. L. TALIAFERRO.

Medical Education

ESSENTIALS OF AN ACCEPTABLE MEDICAL COLLEGE.*

1. The minimum requirement for admission to an acceptable medical college is a four-year high school education or its full equivalent and two years of work in a college of arts and sciences approved by the Council on Medical Education are as follows:

1. High School Requirements

(*a*) For admission to the two-year premedical college course, students shall have completed a four-year course of at least fifteen units in a standard accredited high school or other institution of standard secondary school grade, or have the equivalent as demonstrated by examinations conducted by the College Entrance Examination Board, or by the authorized examiner of a standard college or university which has been approved by the Council on Medical Education. A detailed statement of attendance at the secondary school, and a transcript of the student's work, should be kept on file by the college authorities. This evidence of actual attendance at the secondary schools should be obtained, no matter whether the student is admitted to the freshman or to higher classes.

(*b*) Credits for admission to the premedical college course may be granted for the subjects shown in the following list and for any other subject counted by a standard accredited high school as a part of the requirements for its diploma, provided that at least eleven units must be offered in Groups I-V:

SCHEDULE OF SUBJECTS REQUIRED OR ACCEPTED FOR ENTRANCE TO THE PREMEDICAL COLLEGE COURSE.

Subjects	Units*	Required
Group I, English—		
Literature and composition	3-4	3
Group II, Foreign Languages—		
Latin	1-4	2†
Greek	1-3	
French or German	1-4	
Other foreign languages	1-4	
Group III, Mathematics—		
Elementary algebra	1	1
Advanced algebra	½-1	..
Plane geometry	1	1
Solid geometry	½	..
Trigonometry	½	..
Group IV, History—		
Ancient history	½-1	1
Medieval and modern history	½-1	
English history	½-1	
American history	½-1	
Civil government	½-1	
Group V, Science—		
Botany	½-1	..
Zoology	½-1	..
Chemistry	1	..
Physics	1	..
Physiography	½-1	..
Physiology	½-1	..
Astronomy	½	..
Geology	½-1	..
Group VI, Miscellaneous—		
Agriculture	1-2	..
Bookkeeping	½-1	..
Business law	½	..
Commercial geography	½-1	..
Domestic science	1-2	..
Drawing, freehand and mechanical	½-2	..
Economics and economic history	½-1	..
Manual training	1-2	..
Music: Appreciation or harmony	1-2	..

*A unit is the credit value of at least thirty-six weeks' work of four or five recitation periods per week, each recitation period to be not less than forty minutes. In other words, a unit represents a year's study in any subject in a secondary school, constituting approximately a quarter of a full year's work. A satisfactory year's work in any subject cannot be accomplished under ordinary circumstances in less than 120 sixty-minute hours, or their equivalent.

† Both of the required units of foreign language must be of the same language, but the two units may be presented in any one of the languages specified.

Of the fifteen units of high school work, eight units are required, as indicated in the foregoing schedule; the balance may be made up from any of the other subjects in the schedule.

2. Premedical College Course

(*c*) The minimum requirement for admission to acceptable medical schools, in addition to the high school work specified above, is sixty semester hours of collegiate work in a college approved[7] by the Council on Medical Education. The subjects included in the two years of college work should be in accordance with the following schedule:

SCHEDULE OF SUBJECTS OF THE TWO-YEAR PREMEDICAL COLLEGE COURSE.

Sixty Semester Hours* Required	Semester Hours
Required Subjects:	
Chemistry (a)	12
Physics (b)	8
Biology (c)	8
English composition and literature (d)	6
Other nonscience subjects (e)	12
Subjects Strongly Urged:	
A modern foreign language (f)	6-12
Advanced botany or advanced zoology	3-6
Psychology	3-6
Advanced mathematics, including algebra and trigonometry	3-6
Additional courses in chemistry	3-6
Other Suggested Electives:	
English (additional), economics, history, sociology, political science, logic, mathematics, Latin, Greek, drawing.	

*A semester hour is the credit value of sixteen weeks' work consisting of one lecture or recitation period per week, each period to be not less than fifty minutes net, at least two hours of laboratory work to be considered as the equivalent of one lecture or recitation period.

* From "Choice of a Medical School," issued by American Medical Association.

7. A tentative list of approved colleges may be obtained on application.

SUGGESTIONS REGARDING INDIVIDUAL SUBJECTS

(*a*) *Chemistry.*—Twelve semester hours required of which at least eight semester hours must be in general inorganic chemistry, including four semester hours of laboratory work. In the interpretation of this rule work in qualitative analysis may be counted as general inorganic chemistry. The remaining four semester hours may consist of additional work in general chemistry or of work in analytic or organic chemistry. After Jan. 1, 1922, organic chemistry will be required.

(*b*) *Physics.*—Eight semester hours required, of which at least two must be laboratory work. It is urged that this course be preceded by a course in trigonometry. This requirement may be satisfied by six semester hours of college physics, of which two must be laboratory work, if preceded by a year (one unit) of high school physics with laboratory work.

(*c*) *Biology.*—Eight semester hours required, of which four must consist of laboratory work. The requirement may be satisfied by a course of eight semester hours in either general biology or zoology, or by courses of four semester hours each in zoology and botany, but not by botany alone. This requirement may also be satisfied by six semester hours of college biology, including three semester hours of laboratory work, if preceded by a year (one unit) of high school biology or zoology with laboratory work.

(*d*) *English Composition and Literature.*—The usual introductory college course of six semester hours, or its equivalent, is required.

(*e*) *Nonscience Subjects.*—Of the sixty semester hours required as the measurement of two years of college work, at least eighteen, including the six semester hours of English, should be in subjects other than the physical, chemical or biologic sciences.

(*f*) *Foreign Language.*—A reading knowledge of a modern foreign language is strongly urged. French and German have the closest bearing on modern medical literature. If the reading knowledge in one of these languages is obtained on the basis of high school work, the student is urged to take the other language in his college course. It is not considered advisable, however, to spend more than twelve of the required sixty semester hours on foreign languages.

Recognition.—This two-year premedical course in both quantity and quality must be such as to make it acceptable as the equivalent of the first two years of the course in reputable, approved colleges of arts and sciences leading to the degree of Bachelor of Science.

3. APPROVED COLLEGES OF ARTS AND SCIENCES.

A tentative list of colleges of arts and sciences approved by the Council on Medical Education has been prepared, and revisions of this list will be published from time to time. By an approved college (of arts and sciences) is meant one whose standing has been vouched for by some standardizing agency in whose methods the Council has confidence. To be recognized a college must have sufficient scientific equipment and maintain laboratories in the premedical sciences. It must have ample endowment to maintain a sufficient corps of teachers. Membership in some national organization or association of colleges will be favorably regarded by the Council and, in the absence of such membership, careful investigation will be made of the causes of exclusion. It must also maintain national standards for admission to its freshman class. Students must be required to complete a four-year high school course, and the requirements for admission to the premedical course must be no less that the requirements for admission to the regular B. S. course of the college.

Particular attention will be given to the character of high schools from which certificates are received. Colleges should recognize only certificates from high schools approved by commissions or boards of associations of colleges and secondary schools or other agencies approved by the Council. When such endorsement is lacking the college should be slow in accepting certificates without the support of entrance examinatons. Undue liberality in the acceptance of certificates from secondary schools unendorsed by approved standardizing agencies will be registered by the Council as a failure to comply with its requirements and the college will be dropped from the approved list.

PREMEDICAL COURSES IN MEDICAL COLLEGES—JUNIOR COLLEGES

Premedical college courses given in or by

medical schools, or advance years taken in high schools, will not be considered as acceptable unless they have been investigated and approved by some association of colleges and secondary schools or other approved agency having to do with the standardizing of liberal arts colleges, and unless they are found to be a full equvalent of the first two years of the course leading to the Bachelor of Science degree.

4. The Medical School

ADMINISTRATION OF ENTRANCE REQUIREMENTS

2. The admission of students to the medical school must be in the hands of a responsible committee or examiner whose records shall always be open for inspection. Documentary evidence of the student's preliminary education should be obtained and kept on file. When the medical school is an integral part of the university, this work usually devolves on the university examiner. Unless the university examiner and his records are closely accessible, however, some officer at the medical school should obtain and keep on file documentary evidence of each student's preliminary education, including both high school and collegiate work. It is particularly important that the records show that the required amount of work in the premedical sciences, including laboratory exercises, has been completed.

OTHER MEDICAL SCHOOL REQUIREMENTS

3. The college should require that students be in actual attendance in the college *within the first week* of each annual session and thereafter.

4. Actual attendance at classes should be insisted on except for good cause, such as for sickness, and no credit should be given for any course where the attendance has been less than 80 per cent. of the full time.

5. (*a*) Full advanced standing may be granted to students only for work done in other acceptable medical schools and in granting advanced standing there should be no discrimination against the college's full-course students. Official verification of the student's previous medical work should be obtained by direct correspondence with the college previously attended, and his preliminary qualifications should also be verified and recorded the same as for freshman students. (*b*) In *exceptional cases*, students who possess the required premedical qualifications and who have completed three or more years of work in Class B medical schools may be given adanced stanvding, but not higher than *entrance* to the third year (junior) class, and no credit should be given in any subject except on recommendation of the head of the department teaching that subject. (*c*) In *exceptional cases* also students who possess the required premedical qualifications and who have completed three or more years of work in Class C colleges may be given advanced standing but not higher than *entrance* to the second year (sophomore) class, and then only after thorough examinations in all first year subjects have been passed.

(To Be Continued.)

Analyses, Selection, Etc.

The Community Without A Physician.

The plight of the small, isolated community which has no medical attention is particularly trying at all times, but especially so during an epidemic, such as that which recently swept the country. At such times it is not unusual for many persons to be ill, and even to die, without once being visited by a physician, nurse, or other person skilled in the care of the sick.

The Wisconsin State Board of Health is frequently in receipt of communications from bereaved parents and relatives, telling of their inability to obtain the services of physicians during the fatal illness of members of their families. Sometimes, too, a decided spirit of vindictiveness, for which the holder can scarcely be blamed, is manifested. It is not cheering to read such letters, for the writers are invariably convinced that timely medical advice and attention would have saved the lives of their loved ones. The writers of many of these letters are distinctly at a loss to understand why skilled physicians are not made available for all localities, regardless of their remoteness. They feel that the State should, when necessary, subsidize physicians and nurses so that no one shall suffer unnecessarily because of his living in an unfortunate geographic location.

Properly to provide for the medical and surgical care of people in isolated places would manifestly impose an exceedingly heavy burden on the State. Moreover, the persons in the more thickly populated districts would probably be unfairly taxed for the care of those in sparsely settled places. It is a difficult matter to induce a physician to undertake the practice of medicine in any thinly settled section, for the work is unusally difficult and the compensation small. Unless, therefore, some special enducement is offered, it is evidently impossible to secure the services of a skilled medical attendant in such a place.

Realizing, however, the urgent need for reliable and constant medical service, as well as appreciating the necessity for compensating adequately the physician who undertakes the work, at least one community in Wisconsin has approached the problem in a clear-cut, business-like manner. In their own words they have "decided to take the matter in their own hands."

The enterprising officials of a township in a county located in the extreme northwestern part of Wisconsin have evolved a plan whereby medical practice in their sparsely settled community will be made more attractive than has heretofore been possible. Already nearly every voter in the township has agreed to submit the proposition to a vote in the coming spring election. It is planned to levy a sufficient tax to provide an annual retainer of $1,000 for a physician who shall practice medicine and sugery in this locality. Futhermore, it is proposed to bond the township sufficiently to provide funds for the erection of a physician's residence, the cost of which shall not exceed $5,000. The physician will be permitted to reside in this dwelling and also to have his office therein without the payment of rent. A suitable garage and barn will also be provided.

In return for the annual salary of $1,000 and the rent-free residence, office, garage, and barn, the township board reserves the right to prescribe the fees which shall be collected by the physician. Tentatively the charge of $2 per call made within the township boundaries, together with mileage at the rate of 50 cents per mile traveled, has been set as the fee the physician shall collect. When a call is made outside the township the charge shall be $3, with the same mileage charge. However, $1 of each $3 fee so charged shall revert to the township treasury. Charges for confinements, operations, and other unusual attendance are to be made in accordance with the county medical society's fee schedule.

It is the intention of the officials in charge of the project to have the physician act as health officer and serve as medical attendant to the indigent supported by the township. He is also to serve as school physician, making a physical examination of the pupils at least once in three months during the school term. Futhermore, he is to advise the members of the board of health in professional matters.

The practical operation of the plan outlined by these enterprising township officials will be viewed with keen interest by public health officials, especially those charged with protecting the health of the people of Wisconsin. It is felt that the plan has many features to commend it, particularly the provision for a definite income to the physician while he is becoming established. Under a definite contract a position of this character should prove attractive to the young practitioner. Best of all it should insure compentent, reliable, and regular medical attention for the people who, through choice or necessity, are residing in comparatively remote sections of the country.

Editorial Note.—Of interest in this connection is the following extract from an editorial which appeared in the Boston Medical and Surgical Journal for March 25, 1920:

"There are many small communities throughout the country that are without physicians. Some which have come to our notice have been so for three years and are without any prospect of obtaining a practitioner. Such a condition is a calamity. How to secure adequate medical attention and at the same time have it efficient is the problem which is before these communities. Physicians cannot work without adequate compensation—just what that compensation must be depends upon the cost of living and the work required; but it is very doubtful if satisfactory medical service can be obtained unless the physician has an income of from $3,600 to $5,000 a year. Most communities can afford this amount.

"While we do not approve of a 'contract practice,' we do believe that communities that

are without medical attention should make a contract with a physician which should take the form of a guaranty of a certain salary for the year. He should be free to charge the regular fee, but if at the end of the year he has not collected the specified amount the deficiency should be made up to him. What would this mean to the community of perhaps 1,000 persons? A guaranty of $3,600 would mean $3.60 per year per individual, or, in round numbers, 30 cents per month, or 7½ cents per week. Any community can afford that sum. There are many capable young men who have just graduated from college who would be glad to enter into such an arrangement and who would do good work. The trouble at present is that communities wish the physicians to come to them and take all risks of making a living, regardless of the fact that larger communities usually offer better opportunities for success."

(By P. A. Surg. Robert Olesen, U. S. P. H. S., with Wisconsin State Board of Health—Public Health Reports, April 16, 1920.)

The Truth About Medicine

During March the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-Official Remedies:

Abbott Laboratories:
Elixir Barbital Sodium.
Antoine Chiris Company:
Barbital-Chiris.
Barbital Sodium-Chiris.
Gilliland Laboratories:
Schick Test (Gilliland).
Hollister-Wilson Laboratories:
Ampoules Corpora Lutea Soluble Extract—Hollister-Wilson.
Ovarian Residue—Hollister-Wilson.
Vitalait Laboratory of California:
Condensed Vitalait.

New and Non-Official Remedies.

Anesthesin-Calco.—A brand of benzocaine complying with the N. N. R. standards (see New and Non-official Remedies, 1920, p. 33). Calco Chemical Company, Boundbrook, N. J.

Gonococcus Vaccine (Polyvalent) (Gilliland).—A gonoccoccus vaccine (see New and Non-official Remedies, 1920, p. 283) prepared from a number of strains of **M. gonorrhoea** Neisser. Marketed in packages of four syringes containing, respectively, 250, 500, 1,000 and 2,000 million killed gonococci; also in packages of four 1 Cc. ampules containing, respectively, 250, 500, 1,000 and 2,000 million killed gonococci. The Gilliland Laboratories, Ambler, Pa.

Ovarian Residue—Hollister-Wilson.—The residue from the fresh ovary of the hog, after the ablation of the corpus luteum. It is used for the same conditions as the entire ovarian substance (see New and Non-official Remedies, 1920, p. 201) but is claimed to be somewhat more stable. Hollister-Wilson Laboratories, Chicago. (Jour. A. M. A., March 6, 1920, p. 675).

Phenacaine.—Holocaine hydrochloride. The hydrochloride of phenetidyl-acetphenetidine, a basic condensation product of part phenetidine and acetparaphenetidine. Phenacaine was first introduced as holocaine hydrochloride. It is a local anesthetic like cocaine, but having the advantage of a quicker effect and an antiseptic action. Five minims of a one per cent. solution when instilled into the eye are usually sufficient to cause anesthesia in from one to ten minutes.

Phenacaine-Werner.—A brand of phenacaine complying with the N. N. R. standards. Werner Drug and Chemical Company, Cincinnati, Ohio. (Journal A. M. A., March 27, 1920, p. 889).

Propaganda For Reform.

Green's Dropsy Remedy.—This "treatment is sold on the mail order plan and comes in the form of large balls or boluses, some smaller balls or boluses and, in some cases, includes "Tonic Tablets." The balls are taken, followed by substantial doses of magnesium sulphate. The A. M. A. Chemical Laboratory reports that the boluses, large and small, appear to contain powdered squill as their chief medicinal ingredient. The laboratory further reports that the "Tonic Tablets" contain an iron salt, probably dried ferrous sulphate, as the chief medicinal ingredient. Obviously, there must be no small amount of danger for a person in a dropsical condition to dose and drastically purge himself. The product is one that has no legitimate place among home remedies. (Jour. A. M. A., March 6, 1920, p. 692).

Stannoxyl.—On the assumption that tin workers were less troubled with boils than the average person, two French investigators proposed the use of tin compounds in the treatment of staphylococcus infections. Based on their work, a proprietary preparation—Stannoxyl—has been placed on the market with the claim that it is "composed of stannous oxid and specially purified metallic tin." Absurdly extravagant and unwarranted claims are made for the product. (Jour. A. M. A., March 6, 1920, p. 692).

Hepatola.—This was declared a fraud by the federal authorities in 1917, and the Hepatola Company was denied the use of the United States mails. It is still being sold in Canada. Hepatola is one of the many treatments claimed to remove gallstones. Analysis showed Hepatola to be the same old gallstone trick—that of giving the patient a large dose of some bland oil and following it up with a saline. The soapy concretions that are voided following this dosing are the "gallstones." Hepatola is essentially the same as "Fruitola" and "Mayr's Wonderful Stomach Remedy." (Jour. A. M. A., March 13, 1920, p. 752).

More Misbranded Drugs.—Boericke and Runyon's santonin and calomel tablets, acetanilid and quinin compound tablets, potassium iodid tablets, and morphin sulphate tablets did not contain the claimed amount of drug, and some aspirin tablets contained no aspirin. Sulferro-Sol was falsely claimed to cure pellagra, dyspepsia, indigestion, etc.

Santal Pepsin Capsules was falsely claimed to be a specific for all bladder trouble, gonorrhea, gleet, inflammation of the ovaries, rheumatism, Bright's disease and a number of other conditions. (Jour. A. M. A., March 20, 1920, p. 818).

Platt's Chlorides.—The Council on Pharmacy and Chemistry reports that Platt's Chlorides is inadmissible to New and Non-official Remedies because its composition is uncertain and indefinite, and because the claims made for it are exaggerated and misleading. The A. M. A. Chemical Laboratory analyzed a specimen purchased in 1911 and one purchased in 1919, and reports that while both contain aluminum salt and zinc chlorid, they differ considerably in composition and the latter contains a very small amount of mercuric chlorid. In the past, the advertising for Platt's Chlorides has suggested more or less directly that, as chlorinated lime (bleaching powder) may be made to give off chlorin gas which disinfects, so the air in a room may be disinfected by evaporating Platt's Chlorides. From the analysis of Platt's Chlorides it is evident that when the preparation is evaporated under ordinary conditions, only water vapor escapes. Whatever disinfecting or germicidal action the preparation may possess is exercised only when the solution is brought in direct contact with the substance to be disinfected. The aluminum and zinc salts present may be useful as deodorants, but they are not effective as germicides. The small amount of mercuric chlorid is hardly to be considered as materially increasing its efficiency. (Jour. A. M. A., March 27, 1920, p. 903).

Book Announcements

Pope's Manual of Nursing Procedure. By AMY E. POPE, Formerly Instructor in the School of Nursing, Presbyterian Hospital, New York, and author of several book for nurses. G. P. Putnam's Sons, New York and London. The Knickerbocker Press 1919. 596 pages. Illustrated. Cloth, price, $2.40.

Nervous and Mental Disease. .By ARCHIBALD CHURCH, M. D., Professor of Nervous and Mental Diseases in Northwestern University Medical School, Chicago; and FREDERICK PETERSON, M. D., formerly Professor of Psychiatry, Columbia University. Ninth Edition, revised. Philadelphia and London. W. B. Saunders Company. 1919. Octavo of 949 pages, with 350 illustrations. Cloth, $7.50 net.

Text-Book Upon the Pathogenic Bacteria and Protozoa. For students of medicine and physicians. By JOSEPH McFARLAND, M. D., Sc. D., Professor of Pathology and Bacteriology, University of Pennsylvania. Ninth edition, revised. Philadelphia and London. W. B. Saunders Company. 1919. Octavo of 858 pages with 330 illustrations, a number of them in colors. Cloth, $4.75 net.

Modern Surgery, General and Operative. By JOHN CHALMERS DaCOSTA, M. D. Samuel D. Gross, Professor of Surgery, Jefferson Medical College, Philadelphia. Eighth Edition, Revised, Enlarged, and Reset with 1,177 Illustrations. Some of them in colors. Philadelphia and London. W. B. Saunders Company, 1919. Octavo of 1,697 pages. Cloth, $8.00 net.

The Diseases Of Infants and Children. By J. P. CROZER GRIFFITH, M. D., Ph. D., Professor of Pediatrics, University of Pennsylvania. Two octavo volumes totaling 1,542 pages, with 436 illustrations, including 20 plates in colors. Philadelphia and London. W. B. Saunders Company, 1919. Cloth, $16.00 net.

The After-Treatment Of Surgical Patients. By WILLARD BARTLETT, A. M., M. D., F. A. C. S., and collaborators. Vol. I. St. Louis. C. V. Mosby Company, 1920. 674 pages with 222 original illustrations and one color plate. 8vo. Cloth.

The After-Treatment of Surgical Patients. By WILLARD BARTLETT, A. M., M. D., F. A. C. S., and collaborators. Vol. II. St. Louis. C. V. Mosby Company, 1920. 391 pages with 213 original illustrations. 8vo. Cloth.

Bacteriology In Abstract. By A. B. WALLGREN, B. S., M. D., Assistant Professor of Biology, University of Pittsburgh; Author of Histology in Abstract and Pathology in Abstract. Pittsburgh, Pa. Medical Abstract Publishing Company. Jenkins Arcade Building. Cloth. Vest Pocket size.

Medical Clinics Of North America. Volume III, Number 5. (PHILADELPHIA NUMBER.) March 1920. Philadelphia and London. W. B. Saunders Company. Issued bi-monthly. Price per year (6 numbers), paper $12.00; Cloth, $16.00.

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The American College Of Surgeons

Will hold its next meeting during the week of October 11th, in Montreal. An interesting and attractive program is being planned. This will be the first meeting held outside of the United States.

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Editorial

Tests of Heart Function.*

The reserve force of the heart may evince itself in two ways, either by an increase in rate or an increase in systolic output with each beat. Careful observation of heart action in order to judge of the heart function may be grouped under (1) clinical observation, (2) change of pulse rate, (3) blood-pressure variations, (4) instrumental tests, by polygraph, Roentgen ray, electrocardiograph and metabolic examination.

First, we may judge by clinical observation. Irregularities of pulse imply a waste of heart energy and poor heart power, pulsus bigeminus, pulsus trigeminus, auricular fibrillation, betoken weak, exhausted heart musculature.

Variations in the rate of the heart, tachycardia, bradycardia, pulsus alternans are signs of alterations and waste of heart power. Dyspnea is one of the most practical and useful clinical signs of heart functional disturbances. Severe dyspnea is an early sign of heart failure, associated with fine crepitation at the bases of the lungs. Auscultation of the heart helps much in judgment of heart function. For instance, a diminished second aortic sound following brief exercise, associated with accentuation of the second pulmonic sound, indicates to the examiner a lessened functional power in the left ventricle and a more potent right ventricle.

*Read Kahn (Mount Sinai Hospital) Medical Clinics of North America, September, 1919, page 433.

Change of Pulse-Rate is useful also. The pulse is normally slower in the recumbent position. The normal difference of 7 to 15 beats is diminished or altogether lost in cases of incompetent valvular disease or when the heart is muscularly fatigued or weak. A variation of pulse rate of 30 beats between standing and lying indicates a poor heart function. Effect of exercise of pulse-rate is another clinical method of judging the heart. This is a simple test. It was used in the recent war very generally in testing soldiers' heart function. The pulse rate is counted while patient stands. The patient then performs a given amount of work as hopping 70 times on one foot. Then after waiting for two minutes the pulse is again counted. If the pulse-rate returns to normal after the lapse of two minutes the heart function is considered normal or within the normal.

Blood-pressure measurement of heart function is commonly used by practical observers. This is very easily done with an ordinary sphygmomanometer. The palpating finger notes the resistance of the vessel-wall, the size of the pulse-beat, the character, duration and quality of the pulse-wave, and the diastolic pressure of the wave. These are valuable in assisting the clinician to form a judgment of heart function. But the instrumental measurement by the auscultatory blood-pressure reading is more helpful and accurate. One only needs to remember that the maximal (systolic) blood-pressure is during diastole of the heart with aortic valves closed, that the pulse pressure is the amplitude of range of blood pressure between the diastolic and systolic. The pulse pressure, then, serves as the indicator of functional capacity of the heart: the normal pulse pressure ranges from 30 to 50 m. m. below the systolic pressure.

Tiegerstedt's factor for cardiac function is a useful formula to use in this connection. Pulse-pressure is divided by systolic pressure. This equals the blood-pressure coefficient. In normal persons this coefficient is 25 to 35 per cent. So, if a person has a pulse pressure of 20 mm. Hg. and systolic pressure of 130 mm. Hg., the coefficient is 20/130, or 15 per cent, which indicates poor myocardial function.

Katzenstein's Test is performed by the patient lying quietly in the recumbent position. The pulse rate and blood-pressure are taken. Both iliac arteries are then compressed digitally by an assistant or by an Esmarch bandage

for two or two and a half minutes. Katzenstein concludes that:

(1). In normal compensated hearts after compressing of the iliacs, the blood-pressure rises 5 to 15 mm. Hg. and the pulse-rate falls.

(2). In hypertrophied compensating hearts, the blood-pressure rises 15 to 40 mm. Hg. and the pulse rate falls or remains unchanged.

(3). In beginning decompensation the blood-pressure remains unchanged while the pulse-rate increases.

(4). In cases of cardiac decompensation the blood pressure falls while the pulse-rate increases considerably.

The use of the polygraphic tracings and the electro-cardiographic changes and metabolic changes involves the use of instruments demanding more or less special study and opportunity. These cannot be so readily and so generally used, But the heart tests described above can be easily used by the physician in the ordinary course of his work. Surprising and interesting judgment of heart efficiency may be gotten by making bedside and office observations as indicated in the foregoing comment.

The Light of Truth.

The light of truth in dealing with the venereal problem affords the only hope of successfully controlling sex diseases. At last, in our generation, after years of secretly observing its deadly incidence, public opinion seems about ready to grapple with it as a problem full of menace. The Public Health authorities in the various states are dragging out into the light of day the gruesome story of the secret progress of this hideous monster. Through the centuries among the children of men its poisoned breath has blighted generation upon generation of the human race. What horror, abomination, and bitter sorrow has marked the trail of venomous syphilis down the ages? What woe and destruction has been written in the history of gonorrheal infection? From the world of the insane, from the pitiful night of the blind, from the multitude of crippled, deformed, blighted of the human race, comes one long agony of lamentation and misery in answer. Will not thinking, reasoning, intelligent man stop this? He can. The light of truth is the weapon to use.

Truth to the Public. Facts disclosing the nature, the signs and effects and direful consequences, and the mode and manner of propagation of these diseases are a few of the essential points in the publicity campaign. The story of the awful consequences must be told, withholding nothing; but rather disclosing all. Let the same propaganda of publicity signalize this campaign of public health as was successfully employed in campaigns for controlling other infectious diseases unrelated to sex. The upper classes may need a different method or plan of instruction and education from that used to disseminate the truth of these dreadful maladies in the middle and lower strata of the social order. The ways and means are matters for the special work of Public Health officers who understand the difficulties of public instruction. But the truth of this whole matter must be laid before the people.

Truth by the Doctors. The physicians of the land must look the problem squarely in the face. If the venereal laws of the country were rigidly enforced, the doctors would be a potent factor in controlling venereal diseases. Let the members of the Medical Society of Virginia know the law on this matter and let them report these cases to proper authorities in the manner prescribed by law. It has been said that over 250,000 people die each year in this country as a result of venereal infections. The incidence and the complications of these diseases reach a greater multitude. This can be greatly curtailed and controlled by a nation-wide cooperation of the medical profession. The strong weapon, obligated as the profession is under the laws of the land, is the consistent reporting of each case to the Boards of Health. Are we as a profession to be indicted longer with the accusing thought of failure to carry out this provision of the law? Will not shame rest upon us if we fail in this? The accusing finger of the blighted, blinded, crazed and paretic shall not not point to us. Let us support in every way our Boards of Health in the effort to control venereal diseases.

Truth from Public Health Boards. The prophet of old cried, "My people are destroyed from a lack of knowledge." This is the great duty before the Boards of Health. The truth of curing the disease in the individual case and the instructions given the individual during that course of treatment serve as potent factors in reducing the incidence and forestall-

ing the complications. The establishment by Boards of Health of institutions and free clinics for treatment of acute cases and the chronic carriers will assist in the solution of the problem. These free clinics, well organized and conducted, in cities, towns and rural communities, will do much to cure these cases early and protect the general public. The free Wassermann test and other laboratory tests needed for diagnosis will help to throw the light of truth upon obscure or questionable cases. The free, or reasonably low cost and distribution of arsphenamine is another potent possibility in the fight against syphilis.

Florence Nightingale.

"Oh fellow country-women, why hang back? We hear so much of idle hands and unsatisfied hearts, why are there so few to do the work?"

One hundred years ago Florence Nightingale, famed for her labors in reforming the sanitary conditions in the British army, was born. She was the daughter of William Shore Nightingale, of Embry Park, Hamptonshire, England. Although highly accomplished and of brilliant attainments, she very early in life felt the call to the alleviation of suffering. In order to prepare herself for the great task of her life, she in 1844, visited and studied conditions and methods in hospitals all over Europe, and in 1851 went into training as a nurse in the institution of Protestant deaconesses at Kaiserwerth, on the Rhine. She gave ten years of her life to the work of preparation and training. In 1854 England and Russia engaged in war, and Alma was fought on September 20th. The hospitals were crowded with wounded. Unsanitary conditions produced frightful mortality—far in excess of the casualties of the fiercest battle. For England, in this crisis, Florence Nightingale volunteered her services and, with a corps of nurses, on October 21, 1851, set sail for Constantinople. The winter ensuing made suffering and distress most intense. Bad sanitary conditions she recognized as the cause of disease and of the dire mortality. With heroic devotion, superb skill and execution, she set about to remove these evils and to inaugurate a system of nursing which soon mitigated the frightful suffering of the English soldiers.

In the spring of 1855, while in Crimea, this heroic woman was overtaken with a fever which prostrated her, yet she refused to leave her post of duty. On her recovery, she remained at Scutari till Turkey was evacuated by the English, July, 1856. Subsequently, although rendered incapacitated for physical tasks, she devoted her life to the cause of hospitals and nursing.

While reflecting upon the wonderful life-service of this famous woman of history, whose career has given the calling of nursing its strongest appeal and reward, one should not close even a comment of appreciation of this sort, without calling attention to the present-day situation in the profession of nursing. What wonderful developments and accomplishments have been made in the art and science of nursing in these hundred years!

The testimony of the marvelous spirit of service and high standard of efficiency of the nurses of America is readily remembered by all from the course of events in the great world war, when thousands upon thousands of nurses went to war-torn fields of France and gave their services to the cause of humanity.

But the need now for nurses in civil life is very great. The course of events of the war, and following it, seem to have eventuated in a scarcity of nurses in the hospitals and training schools all over the country. It is idle to attempt to analyze the causes of this serious situation. But it is pertinent in this place to say that the physicians of the country should take opportunity to bring the matter to the attention of young women. No force in recruiting the ranks can be found more potent than the physicians themselves. Let the doctors of Virginia realize the need for action in this matter and, as far as possible, endeavor to interest properly prepared young women in the profession of nursing. Let the physician tell the young woman that she must acquaint herself with a limited working knowledge of the anatomy of bones, muscles, blood-vessels, nerves and organs of the human body. She must know, also, a definite, although limited amount, about the physiology of the body. She must learn the common diseases of mankind; familiarizing herself with a nurse's proper knowledge—their symptoms and their general course. She must know, also, of the measures which medical science

possesses to cure and combat disease; of the drugs used; of the diets given; of the surgical and medical technique she must be informed. She must be able to recognize the danger signals of disease; she must be ready to effectively act to combat emergency situations.

She must know craft of the sick room—to choose, to discard, to decide; to understand the light and shadows; to detect and appreciate the noxious and make surroundings pleasant. She must learn the delicate art of handling and caring for the patient; to wash, to dry, to cleanse; to cool the body; to adjust the pillow, to straighten the bedding; to serve the food; to make the sick body comfortable. She must record the changes; record the signs and symptoms of the disease. She must acquire accurate knowledge of certain essentials in the mental attitude of the nurse toward the sick. In this study she must place optimism as the foremost among other necessary important mental qualities—optimism, confidence, brightness! The nurse, also, must learn the importance of taciturnity—when to talk and when to remain silent.

Tell her: If imbued with the spirit of Florence Nightingale, it is truly a noble profession, and the highest reaches of its reward and compensation are found in the rare air of the pure love of the work. For although it's a work that exacts heavy toll, the trained nurse of today, as of a century ago, achieves lasting and satisfying reward in the knowledge of duty well performed to suffering fellow-beings, and with the poet may we not say of the true trained nurse of today as of Florence Nightingale:

Shall I compare thee to a summer's day?
Thou art more lovely and more temperate;
Rough winds do shake the darling buds of May,
And summer's lease hath all too short a date;
Sometimes too hot the eye of heaven shines,
And every fair from fair sometimes declines,
By chance, or nature's changing course, untrimm'd,
But thy eternal summer shall not fade,
Nor shall death brag thou wanderest in his shade
Nor shall death brag thou wanderst in his shade
When in eternal lines to time thou growest.
So long as men can breathe, or eyes can see,
So long lives this, and this gives life to thee.

(108 Wm. Shakespeare Sonnets.)

In writing advertisers, please mention this journal.

News Notes

Improvement In Plan Against Tuberculosis Urged.

In an effort to make better provision for the tuberculous among discharged soldiers, and at the same time to help bring about an improvement in the campaign against tuberculosis, Dr. Hugh S. Cumming, Surgeon General of the U. S. Public Health Service, sent the following telegram to the American Medical Association, while in session in New Orleans:

"I desire to urge more active participation by the general practitioner and by general hospitals in the treatment of tuberculosis. To insure earlier diagnoses, properly train internes and other personnel, popularize treatment in the home climate, provide additional facilities, I earnestly indorse the resolution passed by the National Tuberculosis Association in 1916, recommending that general hospitals should admit tuberculous patients and provide separate wards for that purpose. Sanatoriums and specialists in tuberculosis will always be needed and we should have more of them, but I believe that success in the anti-tuberculosis campaign is largely dependent upon first, convenient facilities for observation and prompt treatment of patients with open tuberculosis and second, in a sharpened perception and higher degree of skill by which the family doctor will make early diagnoses or even forestall the development of clinical tuberculosis in the adult before a definite diagnosis is possible. To provide adequate care for tuberculous ex-service men and others, to protect infants from infection, enlist the aid of the general practitioner, allay phthisiophobia, and improve home treatment of tuberculosis, the opening of general hospitals to this most common of all serious diseases will materially assist."

The Public Health Service, with thousands of cases of tuberculosis among discharged soldiers, who are entitled to medical care and treatment at their hands, find themselves confronted by the fact that practically nowhere will general hospitals admit this class of patients; moreover, there is almost everywhere throughout the United States a lamentable shortage of hospital facilities for those ill with tuberculosis. The opening of general hospitals to this class of patients would do very much more than provide relief for a large class of unfortunates; it would undoubtedly contribute enormously to the efforts now being made to control tuberculosis.

As conditions now are, the interne serving his time in any of the general hospitals, has practically no opportunity whatever to famil-

iarize himself with the diagnosis and treatment of pulmonary tuberculosis. It is small wonder, therefore, that so large a proportion of the general practitioners fall so far short in their diagnoses of pulmonary tuberculosis. The present practice also fosters the erroneous belief in some miraculous virtue in climate in the treatment of tuberculosis, yet those familiar with the disease recognize that it is the PROPER use of fresh air which constitutes the valuable element in treatment at the various well known sanatoria.

In view of the large percentage of deaths from tuberculosis in this country every year, is this not a subject which demands the attention of every doctor and hospital in the country? There is hardly a general hospital that could not devote at least one ward to the care of this class of patients, and the instruction thus given its interns would be invaluable in their private practice.

Tuberculous Persons Without Funds Should Not leave Their Homes.

It is reliably estimated that several hundred tuberculous persons without funds go to Denver every year, most of them with the mistaken idea that climate will cure tuberculosis. They arrive almost penniless, without having made any inquiries, or any provisions for their needs.

Colorado has no State, and Denver no municipal tuberculosis sanatorium, except a small ward at the County Hospital for very sick tuberculous residents, so that the care of such indigent persons is limited to a few private sanatoria, which are continuously so overtaxed that admittance is a long and difficult matter.

These tuberculous poor who migrate to Denver, finding no place where they can be cared for, look for light work in order to maintain themselves, but the demand for such work is far in excess of the supply. Driven to any work they can get, with neither friends nor care, anxious, homesick, hopeless, they rapidly grow worse, and usually soon die for lack of proper rest, food, fresh air, and medical attention—those essentials of treatment which many of them could have had at home, or here, with sufficient funds for two years' care. Without these essentials climate is of no avail.

This desire on the part of Denver and other places frequented by tuberculous patients not to have those without funds come to their doors should not be misconstrued to indicate a lack of hospitality on the part of these localities. Each community has its own burden to carry in the support of its poor and suffering.

May it be but an incentive for the establishment in this and other States of a larger number of State tuberculosis sanatoria, or for the placing of additional beds in those sanatoria already in existence!

American Medical Association.

The House of Delegates of the American Medical Association, on Thursday of Convention week, decided upon Boston, Mass., as the convention city for 1921, and elected the following officers: President, Dr. Hubert Work, Pueblo, Col.; first vice-president, Dr. Isadore Dyer, New Orleans, La.; secretary, Dr. Alex. R. Craig, Chicago; treasurer, Dr. W. A. Pusey, Chicago; speaker of the House of Delegates, Dr. Dwight H. Murray, Syracuse, N. Y., and trustees, Drs. Chas. W. Richardson, Washington, D. C., Wilbur T. Sarles, Sparta, Wis., and Walter T. Williamson, Portland, Oregon.

Through Thursday, there were 3,650 registrations, a very large proportion of these being Southern doctors. A number of attractive and handsome entertainments were given for the doctors and the ladies accompanying them. Virginia's representatives in the House of Delegates were: Drs. Southgate Leigh, Norfolk; Wm. E. Anderson, Farmville, and Joseph T. Buxton (alternate), Newport News.

Doctors from Virginia in attendance at the meeting were: Drs. Wm. E. Anderson, Farmville; John O. Boyd, E. G. Gill, Alfred P. Jones, B. C. Keister, George B. Lawson, Jos. T. McKinney, J. W. Preston, Alvah Stone, H. B. Stone, E. L. Sutherland, and W. R. Whitman, Roanoke; Jos. T. Buxton, Newport News; F. V. Fowlkes, Burkeville; Ira J Haynes, J. Shelton Horsley, Clifton M. Miller, Douglas Vander Hoof, and J. A. White, Richmond; Arthur Hooks, Bristol; M. E. Hundley, Martinsville; D. M. Kipps, Front Royal; Southgate Leigh and L. T. Royster, Norfolk; G. V. Litchfield and J. C. Motley, Abingdon; and J. E. Rawls, Suffolk.

Venereal Disease Control Activities.

During the fiscal year ending June 30, 1919, the Division of Venereal Diseases of the Public Health Service conducted a highly successful program for nation-wide control of venereal diseases. This campaign was conducted with physicians, dentists, druggists, nurses, medical and allied colleges, professional journals and advertising media throughout the country.

A communication was sent to approximately 132,000 doctors in the United States, in order to impress upon them the seriousness of the problem of venereal diseases and to make them realize their responsibility to the public in carrying out the control program. Favorable replies and promises of assistance were received from 60,666 physicians, or nearly 50% of the medical profession of the United States. It is hoped that the ultimate cooperation of the entire medical profession will be obtained.

A plan was suggested by the Service to the medical and allied schools, colleges and universities in the United States to enlarge and improve courses in the diagnosis and treatment of venereal diseases, and to have such courses introduced as major courses in colleges where they are not being taught, and further, to offer special courses covering short periods of time, which men who are now practicing can take in order to prepare themselves to handle these diseases according to the best scientific methods. Favorable replies have been received from all of the 350 colleges thus addressed.

The replies to these two sets of letters will give some conception of the willingness of medical men to assist in wiping out this scourge of creation. The accomplishment of this task will only be made possible by adhering to the old adage, "line upon line and precept upon precept."

Hygeia Hospital Changes Hands.

The Hygeia Hospital, of this city, personally owned and conducted for nearly twenty years by Dr. J. Allison Hodges, was sold the first of May to Dr. John R. Blair, a prominent physician and surgeon of this city, who has a large surgical practice. Dr. Blair will conduct the Hygeia as a general medical and surgical hospital, but will devote his special attention to surgery. He will assume personal charge on June 1, and will form a staff of specialists who will be associated with him in the work. Dr. Hodges will continue to send patients there, and will be a consultant, but will have no part in the active management of the hospital.

It is understood that seventy-five thousand dollars was paid for the hospital, equipment and good will.

The building is complety equipped now as a general hospital, with about forty double and single rooms, and has in addition, separate departments for hydrotherapy, X-ray, massage, electricity, etc., together with sun parlors and roof garden, and every room is occupied at present.

The Hygeia was the second private institution to be established in this city, and has had a successful career under its present management. The hospital is located in the center of the residential district.

Norfolk's Health Center.

Dr. P. S. Schenck, Director of the Public Health Department, of Norfolk, Va., has for several years been planning for a Public Health Center for Norfolk, and it looks as if his plans will shortly be consummated. According to the magazine, "Greater Norfolk," "the proposed site for the buildings is the block of the court house at Bank Street. In the middle of the group will be the existing old Academy building, which will be remodeled to contain the children's court and domestic relations court, and other enterprises connected with these courts. On the sides and to the front of this building will be grouped the general medical buildings, the prenatal building, the detention building, the administration building and the emergency building." A staff of from forty to fifty physicians will conduct the medical department. Though many cities have planned public health centers, few, if any, seem to have made such extensive plans as has Norfolk.

Medical Director Of Memorial Hospital.

At a recent meeting of the Board of Visitors of the Medical College of Virginia, this city, it was decided to create the office of medical director of Memorial Hospital, which is under the jurisdiction of this Board. Dr.

Claude C. Coleman, associate in clinical and operative surgery in the School of Medicine and professor of oral surgery and anesthesia in the School of Dentistry of the Medical College of Virginia, was appointed for this position, and assumed his duties about the middle of April.

As a further measure to fully meet the requirements of the American College of Surgeons in hospital standardization, the following were appointed chiefs of professional departments in the hospital: Dr. Virginius Harrison, obstetrics; Dr. McGuire Newton, pediatrics: Dr. Lawrence T. Price, surgery; Dr. W. B. Blanton, laboratories; and Dr. J. Morrison Hutcheson, medicine. These will constitute an advisory committee to Dr. Coleman, and will be directly responsible to him as medical director of the hospital for the professional work carried on in their departments.

Disabled War Veterans Will Be Retrained To Speak Intelligibly.

The Federal Board for Vocational Education estimates that there are among the injured soldiers, sailors and marines of the world war between 90 and 100 cases of men whose speech became absolutely unintelligible as the result of mouth or neck wounds, aphasia, or other causes. Twenty-five per cent. of these men are still in the hospital and 50 per cent. are in training or approved for training. The courses followed are agriculture, auto mechanics, commercial courses, and chemistry.

There are probably several thousand men throughout the country who became deaf in one ear, or who have suffered slight impairment of hearing in both ears. However, there are only about 200 for whom lip-reading is necessary. Therefore, the approximate number of hearing and speech defect cases will be about 300.

Married—

Dr. James Allan Bennett, Harmony Village, Va., and Miss Grace Bloomwood Vaden, of Middlesex County, Va., April 27.

Dr. Henry Frank Starr, Greensboro, N. C., and Miss Virginia M. Goode, Boydton, Va., May 5.

Dr. Alexander F. Robertson, Staunton, Va., and Miss Frances Sexton, Hazelhurst, Miss., March 26.

The American Pediatric Society

Will hold its annual meeting at Moraine Hotel, Highland Park, Ill., May 31-June 2, inclusive, under the presidency of Dr. Thomas S Southworth, New York City. Dr. Howard C. Carpenter, Philadelphia, is secretary of the society.

Dr. F. Page Nelson,

Crozet, Va., was elected one of the delegates from Albemarle County, to attend the State Democratic Convention in Roanoke, Va., May 19.

Tuberculosis Clinics Throughout State.

Dr. Dean B. Cole, medical director of the Virginia Tuberculosis Association, returned the last of April from St. Louis, where he had been in attendance upon the National Tuberculosis Association. Early this month, he left for Amherst County, where he was to hold a series of diagnostic clinics in connection with a health education campaign that has been organized in that county. During the past twelve months these campaigns have been carried on in about a dozen counties in different parts of the State, and more than 3,500 persons were examined. These clinics are now in demand by more than thirty counties in the State.

Rear Admiral Cary T. Grayson,

President Wilson's medical advisor, has accepted the chairmanship of a committee which will conduct a campaign for $1,440,000 for his alma mater, the College of William and Mary, of Virginia. This college, founded in 1693, is the second oldest in the the United States and the first college established in the South.

Dr. Henry T. Miller,

Formerly of Staunton, Va., is now located in Washington, D. C., with offices at 1449 Massachusetts Avenue, Northwest.

Dr. A. T. Finch,

Chase City, Va., was a visitor in Richmond in April.

Dr. John Drake, Jr.,

Clarksville, Va., is taking a post-graduate course in Baltimore, Md.

The X-Ray Movie.

Combining in a single apparatus the moving picture camera and the X-ray machine, two French scientists, Drs. Lormon and Comandon, have worked out a "radiocinematograph," which makes possible movies of the interior functioning of living organisms. Although yet not entirely perfected, the new invention has reached the practicable stage, and it opens up new fields of investigation which radiology will not be slow to enter.

Medical experts attached to the American Red Cross Commission to Europe are already considering its application to special problems raised by the unprecedented epidemics now sweeping central and eastern Europe.

Dr. Lormon states that the greatest difficulty encountered was the danger of thermic infiltration by the ultra-violet rays during the photographing of the subjects. To overcome this difficulty, the inventors devised a method for changing the character of the rays employed, an achievement comparable to the original discovery of the Roentgen-ray.

Dr. J. J. Kindred,

Well known in this State, and consultant to Farm Colony and Sanatorium, at Belle Mead, N. J., has been appointed highway commissioner of the Borough of Queens, New York City.

Bank Directors.

Drs. F. W. Lewis, Morattico, and C. T. Pierce, Litwalton, have been elected members of the board of directors of the Chesapeake Banking Company, a new bank which will be opened at Lively, Va., in the fall.

Dr. W. C. Moomaw,

Formerly of Victoria, Va., who, after returning from service in France, spent nearly a year in New York, has now located in Petersburg, Va., with offices at 5 South Adams Street, that city.

Dr. William A. Strole,

Formerly of Norfolk, Va., is at present in Chicago, where he is taking a course in genito-urinary work at the University of Illinois.

Dr. T. Welch Dew,

Of Bumpass, R. F. D., Va., was elected one of the delegates to represent Spotsylvania County at the Democratic convention in Roanoke this month.

Dr. Harry S. Mustard,

Of the U. S. Public Health Service, who was detailed to Virginia in co-operative health work with State health workers, recently resigned this position to take up private practice in his old home, Charleston, S. C. Before leaving for his new work, a farewell luncheon was tendered him in this city, by his friends and associates in the State and government medical service.

Hospital Site Purchased.

Trustees of the Virginia Baptist Hospital Association have purchased twenty-five acres of land just outside of Lynchburg, upon which their proposed hospital is to be built. The site, which is located near Peakland, cost $28,000. Work on the hospital will not be started until next year.

Delegates Elected At Republican Convention.

At a meeting last month of the Republican convention in the Eighth Congressional district of Virginia, Dr. F. M. Brooks, Fairfax, was elected district chairman, and Dr. R. E. Wine, Manassas, was elected a member of the State executive committee.

Charter Secured For Hospital For Deformed Children.

A non-stock corporation, composed of a group of Richmond men and women, has secured a charter to erect in Richmond a $300,000 hospital for the treatment of deformed and diseased children. A number of sites have been under consideration, but none has as yet has been definitely determined upon.

Medical College Of Virginia Finals.

Commencement exercises of the Medical College of Virginia will take place on June 1. There are twenty-six members of the senior medical class, five members of the dental class, and twenty-five in the school of pharmacy. There is one young woman in the senior medical class this year and three in the senior pharmacy class.

The South Carolina Medical Association,

Meeting in Greenville, in April, elected the following officers: President, Dr. W. J. Timmerman, Batesburg; vice-presidents, Drs. J. Miles Walker, York; Wm. A. Boyd, Columbia, and Wm. W. Fennell, Rock Hill; secretary-treasurer, Dr. Edgar A. Hines (re-elected), Seneca.

Two Additional Surgeons Appointed In Richmond To Treat Wounded Soldiers.

Owing to an increase in the work of the U. S. Public Health Service relief and reconstruction station in this city, Drs. A. Murat Willis and Blanton L. Hillman have been appointed as additional members of the staff. Dr. John L. Moore, of the U. S. Public Health Service, assisted by Dr. C. T. Wilfong, also of the service, has been in charge of this work in Richmond, with a consulting staff composed of Drs. C. C. Coleman, J. A. Baird, Paul V. Anderson, William Russell Jones and C. W. Mercer.

Dr. George Tucker Harrison

Has been appointed surgeon of the John Bowie Strange Camp, Confederate Veterans, at Charlottesville, Va. Dr. W. E. Norris was appointed assistant surgeon.

Stafford County (Va.) Board Of Health.

The following were in April appointed as the physician members of the Board of Health for Stafford County: Dr. John C. Gordon, Garrisonville; H. W. Patton, Hemp, and L. F. Lee, River Road. These, together with the chairman and clerk of the Board of Supervisors, will constitute the County Board.

Nurses Have Large Meeting In Atlanta.

Approximately 3,000 nurses met in Atlanta, in April, to attend the twenty-second biennial convention of the American Nurses' Association, the National League of Nursing Education, and the National Organization for Public Health Nursing, which held a week's session there. A number of foreign countries were represented, including France, England, Holland, Canada, Denmark and Finland. Among the subjects discussed were education of student nurses; training school administration; introduction in the nursing school of public health instruction; the relation of the public health nurse to industrial hygiene; health education of school children, and the co-ordination of public and private agencies in the field of public health nursing.

Dr. and Mrs. Herbert R. Etheridge,

Norfolk, Va., were recent guests in Charlottesville, Va., having gone there to attend the marriage of his brother.

Dr. Theodore Hough,

Dean of the medical department of the University of Virginia, has been recommended to Governor Davis by the Board of Visitors of the University, as a member of the medical commission, established by the recent act of the General Assembly.

Dr. W. E. Bray

Has been promoted by the Board of Visitors of the University of Virginia to the position of associate professor of clinical diagnosis in the medical school.

Dr. G. W. Skaggs,

Formerly of Greenville, W. Va., and of the '08 class, Medical College of Virginia, has moved to Leewood, W. V., where he is in charge of a local mining practice.

Dr. Edward Sandidge

Has returned to his home in Amherst, Va., after a business trip to Baltimore, Md.

Dr. William C. Ford,

Woodstock, Va., was a visitor in this city in April.

Major J. Fulmer Bright

Recently gave a lecture on "first aid" at the regular meeting of the Hugh Stockdell Machine Gun Company, in this city.

Dr. E. C. Watson,

Roanoke, Va., was appointed by the Virginia Trapshooters' Association as captain of the five-men State team which Virginia was to enter in the Southern Zone State team matches, to be shot at the Southern Zone handicap in Washington, D. C., May 20-22. There are a number of doctors throughout the State who are interested in and belong to these Trapshooters' Associations.

St. Philip's Hospital.

St. Philip's is the name which has been selected for the new hospital for colored people which is shortly to be opened in this city and run in connection with Memorial Hospital. This name was suggested as typifying the only instance in the Bible where a service to the negro race, especially, was mentioned, and is symbolical of the service which this hospital is expected to render to the colored people of this State and the South.

Hospital For Eastern Shore Of Virginia.

Contract has been placed to erect an up-to-date hospital at Nassawadox, an enterprising

town of about 500 inhabitants on the N. Y., P. and N. railroad, in Northampton County, Virginia. It is estimated that the hospital, with equipment, will cost between $75,000 and $100,000. It is to be of reinforced concrete, tile and brick, with complete heating system, electric lights, electric elevators, etc.

Drs. Foxwell and Kinney.

Drs. Raymond K. Foxwell and Kenneth W. Kinney announce the opening of their office at 1720 M Street, Northwest, Washington, D. C., and that they will limit their practice to Neuro-Psychiatry. Prior to their service in the medical corps of the army, Dr. Foxwell practiced in Cambridge, Maryland, and Dr. Kinney in New Orleans, La.

Henry County To Have Health Campaign.

The board of supervisors of Henry County, Virginia, have voted an appropriation of $5,000 to place the county in line for a year's co-operative health campaign with the State Board of Health on the county unit plan. It is expected that this campaign will begin August 1, under a State Board of Health field director and a complete county health organization. The County School Board has also authorized the expenditure of $7,000, to be used in the sanitation of schools in the county to secure, in most cases, the best type of septic tank toilets.

Dr. William M. Winn,

Of Clarksville, Va., is just completing a handsome home, which he will shortly occupy.

Dr. G. B. Barrow,

Clarksville, Va., was a recent visitor in Stovall and Townsville, N. C., having been called to these places on professional business.

Dr. E. C. L. Miller,

Of this city, addressed the Pharmaceutical Association of the Medical College of Virginia, at its regular meeting held the middle of April.

Alcoholic Cases To Be Reported.

S. R. Donohue, Federal Prohibition Director for Virginia, has announced that all hospitals in the State having patients under treatment for alcoholism must report the names of patients under treatment, in order that a complete record of all such cases may be kept.

Dr. John C. Gordon,

Of Garrisonville, Va., has been appointed by Judge Chichester, coroner of Stafford County, Virginia.

Dr. W. A. Plecker,

Chief of the State Bureau of Vital Statistics, by invitation attended the Conference of Southern Mountain Workers in Knoxville, Tenn., last month, and gave an address on child and maternal welfare.

Dr. and Mrs. Manfred Call

Recently returned to this city after a visit to Atlantic City and New York.

Dr. S. P. Conduff,

Draper, Va., was recently elected a member of the Pulaski County Democratic Executive Committee.

Dr. Charles Wallace Sale,

A native of Fredericksburg, Va., has been promoted to the rank of major in the medical corps of the U. S. Army. He has recently been stationed at Walter Reed General Hospital, Washington, D. C.

Alabama Medical School To Be Moved.

It has been announced that trustees of the University of Alabama, at a meeting in April, voted to move the University of Alabama School of Medicine from Mobile to Tuscaloosa. This was to be done forthwith, but with due regard to the present term of the medical school, which ends June 1, 1920.

The Medical College Of The State Of South Carolina

Has received from the State an appropriation of $71,000 for maintenance, which is $21,500 more than the previous appropriation. An additional appropriation of $60,000 was also made for the physiology building and its equipment.

The Association Of Military Surgeons Of The U. S.,

At their recent meeting in New Orleans, selected Washington, D. C., as their next place of meeting, and elected Asst. Surgeon Gen. John W. Kerr, U. S. Public Health Service, Washington, president, and re-elected Col. Jas. Robb Church, M. C., U. S. Army, Washington, secretary-treasurer and editor.

Dr. E. L. Sutherland,

Formerly of Dublin, Va., after taking a post-graduate course in New York City, has located in Roanoke, Va., where he and Dr. A. A. Cannaday are associated. Their practice is limited to diseases of the eye, ear, nose and throat.

Dr. Ira J. Haynes,

Of this city, has been elected vice-president of the American Mutual Drug Company, a new manufacturing drug company recently started up in Richmond.

Major A. G. Coumbe, M. C.,

Of Vienna, Va., who has recently been stationed at Ft. Wood, New York Harbor, is now at Camp Mead, Maryland.

Dr. William F. Grigg,

Formerly of 10 West Grace Street, this city, has bought the house and lot at 934 West Grace Street, and will move his office and residence there on the first of June.

A Special Aviation Medical Service

May be created in the U. S. army medical corps, with a view to materially decreasing fatalities among flyers in the service. Statistics compiled by British medical authorities for the first year of the war showed that 90% of deaths among aviators were due to physical defects among pilots, 8% to defective planes, and 2% to enemy activities. Upon the establishment of the air medical service, which made a special study of the qualifications necessary in an aviator, the percentage of deaths due to the faults of pilots was reduced to 12.

Good Location For A Physician.

For rent or sale. Pretty Queen Ann cottage with nice lawn and shade trees and ten acre lot. Doctor's office equipped with drugs and surgical instruments for general practice. Situated in small town on upper James.

Interested parties please address "V," care this journal. (Adv.)

Location and Practice For Sale,

With good 8-room house—$8,000. Address "Q. Y.," care Virginia Medical Monthly.—(Adv.)

Wanted—An Assistant for general practice. Good roads, comfortable house with electric lights and bath. Good schools and churches. Address, B. R. Hudnall, M. D., Low Moor, Va. (Adv.)

Obituary Record.

Dr. Joseph Johnston Shanks,

Of Salem, Va., died at McAlpin, W. Va., March 31, from pneumonia. He was in his sixty-fourth year. Dr. Shanks was a graduate of the New York University Medical College in 1882.

Dr. Rozier Clageth Bayly,

Of Alexandria, Va., died in a Washington hospital, March 28, three days after an operation for mastoiditis. He was in his thirty-ninth year, and had received his medical education at Georgetown University, Washington, from which he graduated in 1905. He was at one time a lieutenant in the medical corps of the U. S. Army. At the time of his death, Dr. Bayly was secretary of the Fairfax County, Va., Medical Society.

Maj. Fredk. C. A. Kellam,

Of the U. S. Army medical corps, died in Washington, D. C., April 11, after undergoing an operation. He was a native of Pungoteague, Va., and was 38 years of age. His medical education was received at the Atlanta College of Physicians and Surgeons, from which he graduated in 1909. During the recent war, he had charge of the government hospital at San Antonio, Texas.

Dr. James Garland Boxley,

Of Louisa County, Va., died April 22, after an illness of many months, aged 77 years. When 21, he graduated from the Medical College of Virginia and at once entered the Confederate Navy. Upon the close of the war, he married and located in Louisa County, where he practiced his profession and conducted a large farm until forced to retire on account of failing health. Several sons survive him.

Mr. Frank G. Ryan.

It is with regret that we announce the death in Detroit, Mich., April 20, of Mr. Frank G. Ryan, president of the well known firm of Parke, Davis & Company. His death was due to pneumonia. Mr. Ryan was fifty-nine years of age and was one of the founders of the American Drug Manufacturers' Association, and a former instructor at the Philadel-